


Brandeis University



Waltham, Massachusetts



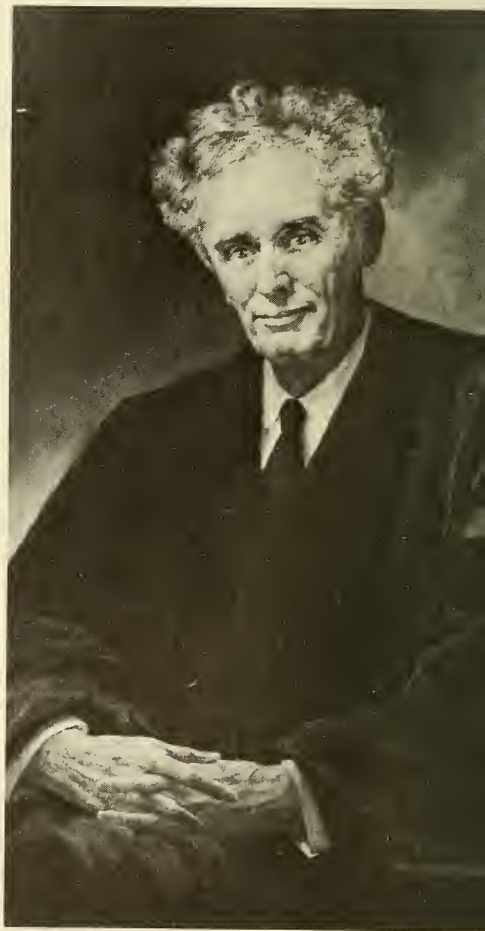
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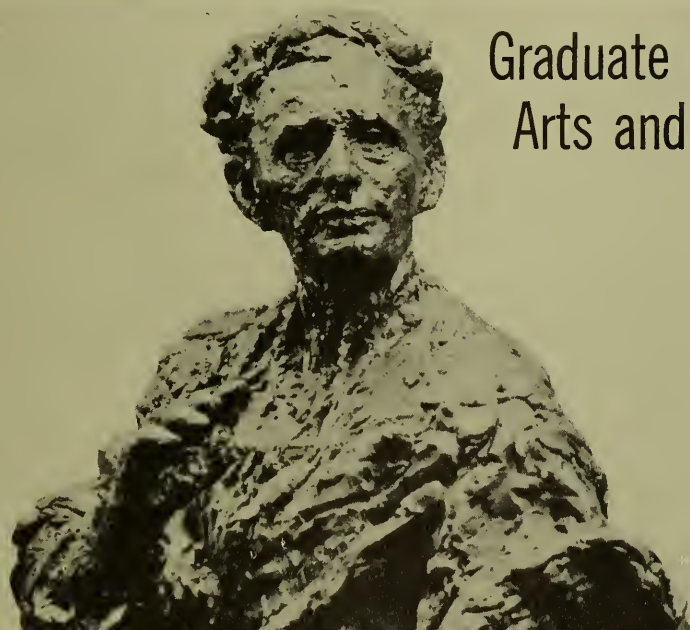
Brandeis University

The
Graduate School
of Arts and
Sciences
1963/1964

W A L T H A M , M A S S A C H U S E T T S

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Graduate School of
Arts and Sciences

COVER: *The statue of Louis Dembitz Brandeis on the Brandeis University campus executed by Robert Berks under a commission from Lawrence A. Wien of New York. Dedicated by Chief Justice Earl Warren on the 100th anniversary of the birth of Brandeis, November 1956.*

Vol. XIII No. 3 October, 1963

Brandeis University Bulletin, published six times a year; once in July, once in September, twice in October and once each in January and May, at Brandeis University, Waltham, Massachusetts, 02154. Entered as second class matter at the Post Office at Boston, Massachusetts.

"It must always be rich in goals and ideals, seemingly attainable but beyond immediate reach. . . .

"It must become truly a seat of learning where research is pursued, books written, and the creative instinct is aroused, encouraged, and developed in its faculty and students.

"It must ever be mindful that education is a precious treasure transmitted—a sacred trust to be held, used, and enjoyed, and if possible strengthened, then passed on to others upon the same trust."

—from the writings of
LOUIS DEMBITZ BRANDEIS (1865-1941)
on the goals of a university.



“Brandeis will be an institution of quality, where the integrity of learning, of research, of writing, of teaching, will not be compromised. An institution bearing the name of Justice Brandeis must be dedicated to conscientiousness in research and to honesty in the exploration of truth to its innermost parts.

“Brandeis University will be a school of the spirit—a school in which the temper and climate of the mind will take precedence over the acquisition of skills, and the development of techniques.

“Brandeis will be a dwelling place of permanent values—those few unchanging values of beauty, of righteousness, of freedom, which man has ever sought to attain.

“Brandeis will offer its opportunities of learning to all. Neither student body nor faculty will ever be chosen on the basis of population proportions, whether ethnic or religious or economic.”

—DR. ABRAM L. SACHAR, at the ceremonies inaugurating
Brandeis University, October 8, 1948



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Academic Calendar 1963-1964

Fall Term

Monday	September 23 and	Registration, including payment of fees, 9:30 to 11:30 a.m. and 1:30 to 4:15 p.m. in Rabb Graduate Center. Students who register later will be fined \$10.00.
Tuesday	September 24	
Thursday	September 26 and	
Friday	September 27	Opening days of instruction in all courses.
Thursday	October 3	No University Exercises.
Thursday	October 10	No University Exercises.
Monday	October 14	Final date for registration.
Monday	October 21	Final date for changing program without \$10.00 fine.
Monday	October 28	Final date for adding courses for credit.
Monday	November 11	No University Exercises.
Thursday	November 28 and	
Friday	November 29	No University Exercises.
Monday	December 2	Final date for February Ph.D. candidates to submit dissertations to department chairmen.
Friday	December 20	Final date for February degree candidates to submit "Application for Degree."
Friday	January 3	Winter recess begins after last class.
		Final date for February degree candidates to submit Master's theses to department chairmen.
Monday	January 6	Classes resume. Final date for faculty certification that February M.A. candidates have satisfactorily completed degree requirements. Final date for faculty certification that February Ph.D. candidates have satisfactorily completed and defended dissertations.
Wednesday	January 8 through	Registration for Spring Term for all students in residence. Resident students will be charged a \$10.00 fine for late registration.
Friday	January 10	
Wednesday	January 15	Final date for February degree candidates to discharge all financial indebtedness to the University.
Monday	January 20	No University Exercises.
Tuesday	January 21 through	
Friday	January 31	Midyear examinations.
Thursday	January 30 and	Registration for students entering in the Spring Term. New students who register at a later date will be fined \$10.00.
Friday	January 31	
Friday	January 31	Final date for admission to candidacy for the Ph.D. and completion of residence and language requirements for all students expecting to have the Ph.D. conferred in

June 1964. Final date for deposit of Ph.D. dissertations by February degree candidates with the Dean of the Graduate School. Final date for submission of grades that were incomplete for Spring Term 1962-63. Grades due for all Fall Term courses.

Friday February 7

Spring Term

Monday February 3

Monday February 17

Monday February 24

Monday March 2

Thursday March 26

Wednesday April 1

Monday April 6

Monday April 20

Friday May 1

Friday May 15

Monday May 18

Tuesday May 19 through

Friday May 29

Monday June 1

Friday June 5

Saturday June 6

Sunday June 7

Classes resume.

Final date for registration of new students.

Final date for changing study cards without \$10.00 fine.

Final date for adding courses for credit.

Final date for filing "Application for Financial Assistance" for 1964-65.

Spring recess begins after last class.

Final date for June Ph.D. candidates to submit dissertations to department chairmen. Final date for all June 1964 degree candidates to submit "Application for Degree."

Classes resume.

Final date for faculty to certify that M.A. and M.F.A. candidates have completed language requirements.

Final date for submission of Master's theses to department chairmen.

Final date for faculty certification that June Ph.D. candidates have satisfactorily completed and defended dissertations. Final date for faculty certification of Master's theses. Final date for certifying that June M.A. candidates have passed qualifying examinations.

No University Exercises.

Final examinations.

Grades due for June degree candidates. Final date for deposit of Ph.D. dissertations with the Dean of the Graduate School. Final date for submission of grades that were incomplete for Fall Term 1963-64. Final date for June degree candidates to discharge all financial indebtedness to the University.

Grades due for all Spring Term and full year courses. Final date for admission to candidacy to the Ph.D. and completion of residence and language requirements for students expecting to have the Ph.D. conferred in February 1965.

Baccalaureate.

Commencement.



Brandeis University



Brandeis University has set itself to develop the whole man, the sensitive, cultured, open-minded citizen who grounds his thinking in facts, who is intellectually and spiritually aware, who believes that life is significant, and who is concerned about society and the role he will play in it.

The University will not give priority to the molding of vocational skills, nor to developing specialized interests at the expense of a solid general background. This does not mean that what is termed practical or useful is to be ignored; Brandeis merely seeks to avoid specialization unrelated to our basic heritage—its humanities, its social sciences, its sciences and its creative arts. For otherwise, fragmentized men, with the compartmentalized point of view that has been the bane of contemporary life, are created.

A realistic educational system must offer adequate opportunity for personal fulfillment. Education at Brandeis encourages this drive for personal fulfillment, but only within the framework of social responsibility. Thus Brandeis seeks to educate men and women who will be practical enough to cope with the problems of a technological civilization, yet mellowed by the values of a long historical heritage; self-sufficient to the point of intellectual independence, yet fully prepared to assume the responsibilities society imposes.

Brandeis University came into being because of the desire of American Jewry to make a corporate contribution to higher education in the tradition of the great American secular universities that have stemmed from denominational generosity. By choosing its faculty on the basis of capacity and creativity, and its students according to the criteria of academic merit and promise, the University hopes to create an environment which may cause the pursuit of learning to issue in wisdom.



This initial and unwavering commitment to excellence has earned early acceptance of the University in academic circles and among those who participate, at the highest levels, in support of the nation's most promising colleges and universities. Full accreditation came to Brandeis at the earliest possible moment. In 1961, Phi Beta Kappa granted permission for a chapter (Mu of Massachusetts) to be formed on its campus. Most recently the Ford Foundation assessed the record and potential of the University and buttressed their belief in its future with a major challenge grant to Brandeis on a matching basis.

University Organization

Brandeis is one of the few small universities in the United States. The academic programs, described below, are each limited in size to encourage quality and integrity of intellectual achievement. There is constant interaction between college, graduate and professional schools, and institutes. The accomplishments of one set automatic pace for the others, and the interchange benefits all, creating an intellectual environment of decided vitality. Additionally, the organic richness of the extensive research activity fertilizes the undergraduate root of the institution no less than the graduate and professional programs.

The College of Arts and Sciences

In keeping with its general objectives, Brandeis attaches the greatest of importance to the liberal arts curriculum. It is designed to offer full academic opportunities for those students planning to pursue graduate or professional

studies as well as those whose educational objective is the baccalaureate degree.

The College of Arts and Sciences offers instruction in the Schools of Creative Arts, Humanities, Social Science and Science. Regularly matriculated students pursuing courses of instruction under the Faculty of Arts and Sciences may, upon satisfactory completion of the first year, continue as candidates for the Bachelor of Arts degree.

Established in 1948, full accreditation was received from the New England Association of Colleges and Secondary Schools in 1953 and authorization to establish a Phi Beta Kappa chapter (Mu of Massachusetts) in 1961.

(Full information is available in the catalog of the College of Arts and Sciences).

The Graduate School of Arts and Sciences

The Graduate School is designed to educate broadly as it trains professionally. It is sensitive to the fact that as specialization increases within society, the traditional boundaries between the Ph.D. and advanced professional degrees are gradually losing their distinctions. It seeks to achieve a spirit of informality, without sacrificing work disciplines.

The Graduate School of Arts and Sciences offers courses of study leading to the master's and doctor's degrees. Graduate areas include Anthropology, Biochemistry, Biology, Biophysics, Chemistry, Contemporary Jewish Studies, English and American Literature, History of Ideas, Mathematics, Mediterranean Studies, Music, Near Eastern and Judaic Studies, Physics, Psychology, and Sociology.

The Florence Heller Graduate School for Advanced Studies in Social Welfare

The Florence Heller Graduate School for Advanced Studies in Social Welfare, made possible through the generous grant of Mrs. Florence Heller of Chicago, was established at Brandeis University in 1959. Applicants are required to have earned the degree of Master of Social Work at an accredited school and, preferably, to have had experience on a professional level. The program of study leads to the doctorate and is designed to qualify graduates for administrative and consultive roles in established areas of social work endeavor, as well as newly emergent areas such as international social work, inter-group organization, labor, industry and government. Special emphasis is placed upon community organization, social work administration, and research, making full use of relevant principles and experiences from the social sciences.

(Full information is available in the catalog of the Heller Graduate School).

Related Academic Programs

Wien International Scholarship Program

The Wien International Scholarship Program, created in 1958 by the Lawrence A. and Mae Wien Fund, is designed to further international understanding, to provide foreign students with opportunities for study in the United States, and to enrich the intellectual and cultural life of the Brandeis campus.

The Program permits the University to offer one-year scholarships, covering tuition, room, board and, in rare instances, travel costs, to students from foreign nations. Awards, made for the academic year, may be renewed for a subsequent year. All applicants must possess a thorough knowledge of the English language.

All Wien Scholars study within the regularly organized curriculum, which is supplemented by special seminars, conferences and field trips, planned to provide the opportunity to obtain a broad understanding of most facets of American Society.

The Wien Program endorses the participation of accepted students in accredited summer orientation programs, especially in the Boston Area International Seminar, a cooperative effort by Boston College, Brandeis, Boston University, Harvard University, and Massachusetts Institute of Technology. Wien Scholars are also encouraged to participate in the Homestay Program of the Experiment in International Living and in similar authorized programs which are designed to make the foreign student at home in his new environment.

Jacob Hiatt Institute in Israel

The University conducts, with the co-operation and support of the United States Department of State, an annual one-semester Institute in Israel. Open to juniors who have completed introductory courses in political science and sociology, the Institute offers instruction in modern Jewish and Israeli history; Israeli political and social institutions and the Hebrew language.

The Institute, which is located in Jerusalem and directed by Brandeis faculty members, is unique in that it emphasizes first-hand investigation. Formal classroom work is supplemented by seminars with persons prominent in Israel's political and economic life, and fieldwork is conducted at such on-the-spot locations as factories, seaports, labor councils, agricultural settlements, Arab and Christian communities, army training centers and mineralogical exploration points in the Negev Desert.

Enrollment in the Hiatt Institute is also open to a limited number of qualified students from other colleges and universities.



Nursery School Freshmen are Younger

The Sarah and Gersh Lemberg Nursery School

The Lemberg laboratory-nursery school was established, as a unit of the Psychology department, in the fall of 1961 through the generosity of Samuel and Lucille Lemberg. Both indoor and outdoor facilities and equipment accommodate some 30 youngsters. Brandeis students enrolled in the education sequence, and students from Tufts University and Wheelock College, serve as practice teachers.

Rubin Anthropology Program

A grant from the Samuel Rubin Foundation led to an intensive and diversified program of training and field work in foreign lands, and also provided for an undergraduate program which included summer field work training for honors candidates and a fully subsidized scholarship program.

Rosenstiel Biochemistry Program

The graduate and research program in biochemistry is supported by a grant from the Dorothy H. and Lewis Rosenstiel Foundation made "in support of research in the natural sciences with primary emphasis in biochemistry."

The Rosenstiel Biochemistry Program, established in 1957, includes more than 70 graduate and postgraduate research fellows. Among the agencies co-operating in sponsoring research are the National Science Foundation, National Institutes of Health, Office of Naval Research, American Cancer Society, Atomic Energy Commission, the Eli Lilly Company, Howard Hughes Foundation, Rockefeller Foundation, National Dental Institute and the Damon Runyon Memorial Fund.

Professorships and Lectureships

Jacob Ziskind Professorships

To implement its philosophy of education, the University brings to the campus distinguished academic figures from sister universities both in the United States and abroad who serve as Ziskind Visiting Professors. This program, made possible by the Jacob Ziskind Endowment Fund, enables the University to supplement its regular teaching staff with the presence of academicians drawn from the major streams of educational thought. Inclusion of distinguished foreign academicians serves to challenge and stimulate faculty and students with the introduction of new concepts and new educational viewpoints, thus strengthening the entire educational process.

Harry B. Helmsley Lecture Series

Established to reduce barriers that separate different races, creeds and nationalities, this annual public lecture series has, since its inauguration, featured leading philosophers, educators, government officials and religious leaders in discussions and seminars that relate to intergroup understanding.

The Martin Weiner Distinguished Lectureships

The income from this endowment fund permits the designation of several Weiner Distinguished Lecturers each year. Lecturers receiving these appointments are selected not only from the academic world, but also include figures drawn from the fields of religion, government, international affairs, letters, science, and the business world. The Weiner Distinguished Lecturers enrich the University's curriculum by participating in regular academic seminars and symposia and, in addition, University convocations and public events.

Stephen S. Wise Memorial Lecture

This annual lecture in memory of Rabbi Stephen S. Wise was established by the late Nathan Straus to bring to the University each year a distinguished representative of the liberalism that was basic to the outlook of Dr. Wise.

Ludwig Lewisohn Memorial Lectures

Sponsored by the students of the University in tribute to their late teacher, this annual series has presented noted literary figures drawn from the fields of criticism and creative writing.

Abba Eban Lectureship

Through the generosity of the late Nathan Straus an endowment has been named for Israel's former ambassador to the United States and representative in the United Nations. The program permits an annual lecture by a statesman or scholar on some phase of Middle Eastern affairs.

Special Academic Programs

Poses Institute of Fine Arts

Established by Jack I. and Lillian Poses, to supplement the University's curriculum program in the Fine Arts, by:

1) Exhibiting paintings, sculpture, artifacts and other expressions of contemporary and traditional art in the University's museum and many gallery halls; 2) Sponsoring lecture series and symposia with notable art historians, scholars and practitioners of the Fine Arts, for the widest possible benefit of the community, academic and otherwise; 3) Establishing, as an ongoing event, annual institutes, organized around basic issues in the arts and contemporary life; 4) A program of artists-in-residence, reflecting the growing sense of responsibility for encouraging the artist-at-work and for the vitalization of academic programs in the Fine Arts; 5) Providing funds for commissions and grants-in-aid for young artists of talent who have completed the formal years of their education and are seeking to establish themselves as practicing artists.





"In honoring, we are honored . . ."

Philip W. Lown Institute of Advanced Judaic Studies

A grant has enabled the University to establish a center of independent research in all areas of Judaic Studies.

In addition to members of the Brandeis faculty, scholars from other universities in the United States and abroad are invited to read papers and to participate in the Lown Institute's monthly colloquia. Fellowships are offered to scholars working on projects commissioned or approved by the Institute. Public lectures deal with topics of wider interest.

The Institute publishes the papers read at its seminars and works of research produced under its auspices in a "Texts and Studies" Series (Harvard University Press).

Philip W. Lown Institute of Contemporary Jewish Affairs

A grant from Philip W. Lown, who has already endowed the Institute of Advanced Judaic Studies, to establish a center for the training of men and women who are concerned with contemporary Jewish scholarship or with a career in institutional Jewish service. The Institute will cooperate with the regular departments of the University and with the Florence Heller Graduate School for Advanced Studies in Social Welfare and will be administered by a director and a interdisciplinary faculty committee. A limited number of fellowships are available to help subsidize these studies. The Institute is geared at the outset for a Masters of Arts degree.

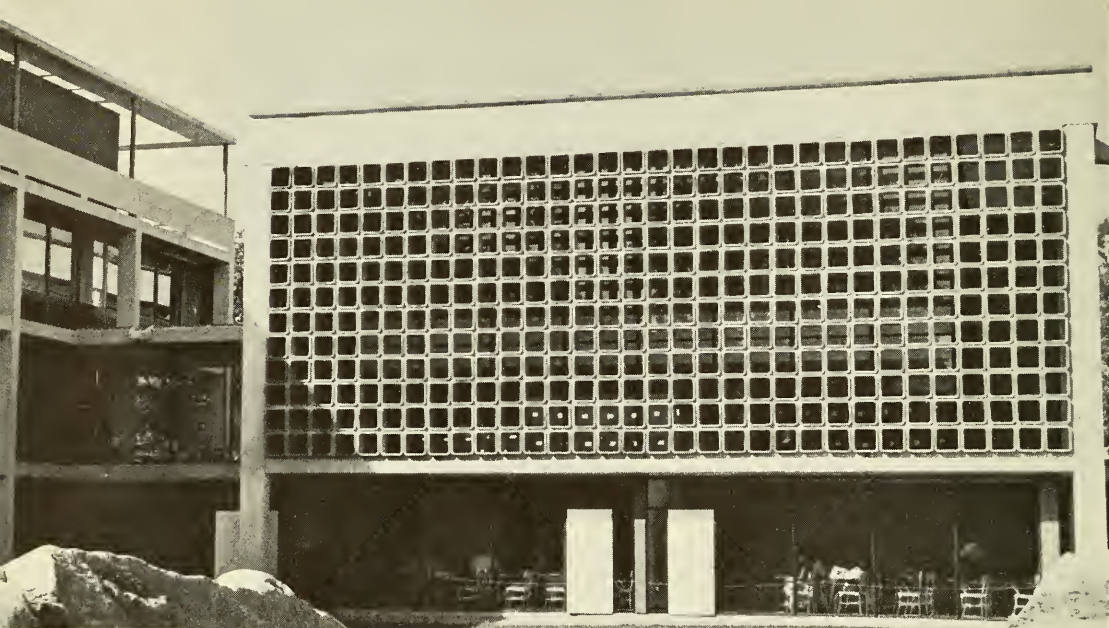
The Morse Communication Research Center

The Communication Research Center of the University is engaged in a program of sponsored research studies, institutes and publications which explore and evaluate many aspects of communications in our society. Essential to these ongoing programs is the simultaneous development of basic resource material. This involves the study of the impact of communications upon many aspects of contemporary life—social structures, political organizations, international relations, education and the formation of individual and group attitudes.

Among the programs undertaken, or in progress, are an annual quantitative study of the programming content of educational television stations in the United States, a multi-national mass communication study program for representatives of newly emerging nations, in cooperation with the United States Department of State, and a national conference on the role and economics of educational television in cooperation with the American Academy of Arts and Sciences, with the support of the United States Department of Health, Education and Welfare. Certain other specific long range research projects related to known communications needs are now being planned.

The Center is primarily underwritten by a major grant from Lester S. and Alfred L. Morse of Boston.





Schwartz Lecture Hall . . . Brandeis' Television Studio

Community Services

Lowell Institute Cooperative Broadcasting Council

Brandeis University is a member of the Lowell Institute Cooperative Broadcasting Council, which sponsors the educational radio station WGBH-FM and Boston's pioneer educational TV station WGBH-TV, Channel 2. Brandeis, along with Boston College, the Boston Symphony Orchestra, Boston University, Harvard University, Lowell Institute, MIT, the Museum of Fine Arts, the New England Conservatory of Music, Northeastern University, and Tufts University, makes its teaching facilities available for use by WGBH-FM and its television affiliate, WGBH-TV. As a member of the Lowell Institute, which develops the programming for both stations, the University, through a Ford Foundation Grant, extends its educational facilities and concepts beyond the confines of the campus, into the communities served by the 40 stations of the National Educational Television Network. A significant program of the University's educational broadcasting was "The Prospects of Mankind," organized by the late Mrs. Eleanor Roosevelt, which appeared on both educational and commercial TV stations, in the United States and abroad. This program was sponsored by the National Educational Television Center, and was produced by WGBH-TV, in co-operation with Brandeis University.

Brandeis University Creative Arts Awards

The establishment of the Brandeis University Creative Arts Awards was announced by the University during 1956. Awards are presented annually in the areas of Theatre Arts, Music, Poetry and Painting or Sculpture. In each of these fields of the arts, two types of awards are bestowed.

Achievement medals are conferred upon successful artists for outstanding accomplishment during the year; and grants-in-aid are awarded to young talented persons, in recognition of their creative ability and encouragement for future study and training. Special juries are appointed annually in each of the fields to judge the competition.

Office of Adult Education

To provide adults with the opportunity to pursue courses of instruction in areas of particular interest to them, the Office of Adult Education sponsors daytime seminars for women, and evening and Sunday-morning lecture courses, all directed by members of the Brandeis faculty, and all consistent with the quality of Brandeis academic offerings. In addition, the office plans and presents a variety of special public lecture programs throughout the academic year.

Summer Institutes for Adults

The Summer Institutes for Adults seek to broaden the University's academic scope by offering a unique residence program to adults from all sections of the country. Participants may spend either one or two weeks of intensive, uninterrupted study, directed by Brandeis faculty members and supplemented by guest lecturers, on topics broadly concerned with the problems and trends of contemporary civilization.

Themis House

Through the generosity of Mr. and Mrs. Boice Gross, Brandeis has acquired the use of a large estate—within a few minutes drive of the campus—consisting of nine acres of land and an attractive English Tudor mansion where it is possible to house, feed and accommodate 30-40 persons. "Themis House" is the setting for significant academic institutes, conferences and training programs sponsored by the University. In exceptional instances, it is made available to cooperating educational or civic agencies.

Brandeis Forum Theatre

The University sponsors a summer theatre with a campus-based Equity company performing several major American dramas in an eight-week season. The plays are presented in the outdoor Ullman Amphitheater as an extension of the University's service to the greater community.

A unique facet of the Brandeis Forum Theatre is the weekly "*Critics' Forum*." Distinguished critics, educators and leading members of the community serve as a panel to discuss and evaluate the play of the week and its relation to the major issue in contemporary life it was selected to illustrate.

General Description

Brandeis University, on the southwest outskirts of Waltham, Massachusetts, is ten miles west of Boston, adjacent to Wellesley and near historic Lexington and Concord.

From the eastern Charles River boundary, University grounds sweep upward to New England's famed Boston Rock, where Governor Winthrop and his Massachusetts Colony explorers first surveyed the region that is today Greater Boston.

By automobile, the campus may be reached from Boston on Commonwealth Avenue (Route 30); from Exit 51 of Boston's encircling Route 128; or from Exit 14 of the east-west Massachusetts Turnpike. Road signs at the Route 30 rotary, just west of the Route 128 overpass, point to Brandeis University. Watertown cars run from Park Street subway stations in Boston to Newton Corner, where a Roberts bus may be taken to the campus on South Street in Waltham. There is also frequent train service on the Boston and Maine Railroad (Fitchburg line) between North Station in Boston and the Roberts Station on the edge of the Brandeis campus, and from nearby Cambridge.

The Three Chapels . . . Jewish, Protestant, Catholic





Center for the University's Administrative Offices

Academic and Administrative Buildings

Administration Center

Overlooking the main entrance to the campus, the Brandeis University Administration Center houses the offices of the president, deans, student administration, university administration and the National Women's Committee. Conference room facilities serve the Board of Trustees, faculty and administrative staff. The Center comprises Bernstein-Marcus Administration Center, Gryzmish Academic Center and the Julius and Matilda Irving Presidential Enclave.

Brown Social Science Center

Adjacent to the library, the Brown Social Science Center includes three structures.

The central building houses the Sociology, Anthropology, Psychology and Economics Departments. It contains classrooms, seminar rooms, faculty offices, laboratories and a small anthropology museum. Glass walls overlook an attractively landscaped quadrangle which the Social Science Center encloses.

Schwartz Hall houses a 300-seat lecture auditorium, classrooms and a spacious lounge. Millions of viewers across the nation have watched television programs recorded in the main auditorium, specially equipped for use as a television studio.

Lemberg Hall is the home of the Lemberg Nursery School, operated by the Department of Psychology. Classrooms with specially constructed walls of one-way glass enable students to observe youngsters in the nursery school and to record their development from the observation room. Lemberg Hall also houses the Psychological Counseling Center.

Brown Terrarium

Brown Terrarium, a completely equipped experimental greenhouse, located between the Faculty Center and Sydeinan Hall, provides facilities for botanical research.

Faculty Center

On the south campus is the Faculty Center, containing club facilities, lounges, the faculty dining room, a private dining room for faculty meetings, and apartments for visiting faculty and lecturers.

Ford Hall

Near the central campus, Ford Hall contains classrooms, laboratories, faculty offices and Seifer Hall, an auditorium seating 500, which is used for lectures, large student meetings, and major conferences.

Friedland Research Center

Joined to Kalman Science Center by an overhead corridor of glass and stainless steel, Friedland Research Center provides four stories of modern laboratories which house research in biochemistry and related life sciences.



The Faculty Center



Goldfarb Library Building

Near the center of the campus, Goldfarb Library Building is a brick, limestone and glass structure with an ultimate capacity of 750,000 volumes. On the periphery of its open stacks are student study carrels and faculty studies. Seminar rooms are provided for those courses requiring intimate and immediate access to library resources in specific research and reference areas. The library also contains audio-visual aids, specialized reading rooms, typing rooms and lounge facilities. Works of art from the University collection are on constant display in the many galleries of the building.

Golding Judaic Center

Overlooking the campus from the northeast corner of the Academic Quadrangle, Golding Judaic Center contains classrooms devoted to the study of the Near East, Judaics and related subjects. Classrooms and faculty offices ring its large, central lecture hall.

Goldman-Schwartz Art Studios

The Goldman-Schwartz Art Studios provides classrooms, faculty offices and sculpture areas for the Department of Fine Arts and studios for faculty, advanced students and artists-in-residence. Its completion marks a major step in fulfilling the master plan for a unified creative arts enclave extending across the southwest campus.

Hayden Science Court

The Charles and J. Willard Hayden Court, comprising several acres in the central campus area, is the site of present and projected science facilities of the University. This area has been set aside as a memorial to two generous benefactors, whose pioneer gift stimulated the extensive scientific programs of the University.

Kalman Science Center

The University's first structure devoted entirely to science, Kalman Science Center continues to be the key facility in the growth of the University's science facilities. This center contains instructional and research laboratories for the undergraduate School of Science and for the advanced work of the Graduate School of Arts and Sciences.

Goldman-Schwartz Fine Arts Center



A Lecture in
Rose Art Museum



Old Library Building

Once the University's library, this brick and fieldstone structure on the central campus has been converted to house the bookstore, post office, and provide research accommodations for the Heller Graduate School for Advanced Studies in Social Welfare.

Olin-Sang American Civilization Center

On a hillside overlooking the library and Three Chapel Area, the Olin-Sang American Civilization Center provides unique seminar-classroom halls which include display areas for the placement of original manuscripts and source materials relating to the courses offered. Included are the Lincoln, Washington, Ethnic, Judicial, Executive and Legislative Halls. The Shapiro Forum, which is the building's lecture auditorium, is patterned after the United Nations General Assembly hall.

Rabb Graduate Center

A circular lounge, walled in glass, is a unique architectural feature of Rabb Graduate Center. Its main building contains classrooms and offices for the staff of the Graduate School of Arts and Sciences.

Rapaporte Treasure Hall

Adjacent to Goldfarb Library Building, and joined to it by a glass-enclosed lobby, Rapaporte Treasure Hall is the repository for rare books, incunabula and other library treasures. The upper level serves as the main exhibition area and the lower level stores the University's growing collection and includes a specially constructed vault with provision for the protection of these rare items against the ravages of time, temperature, humidity, fire or theft.



Shiffman Humanities Center

Rose Art Museum

Located within the Creative Arts enclave, the Rose Art Museum is the focal point for the University's rapidly burgeoning art collection. On permanent display are portions of the noted ceramic collection of Mr. and Mrs. Edward Rose, Major loan exhibitions are placed on display during the academic year as well as selections from the University's permanent collection. The wishing pool on the lower level is both a pleasant setting for quiet reverie and the objective of coin-tossing students before examinations.

Shiffman Humanities Center

Atop a hillside where its glass walls reveal spectacular views of the campus and the country north of Boston, Shiffman Humanities Center employs a new academic concept in educational architecture. Original manuscripts, portraits, and source materials related to courses being offered are displayed in the seminar rooms. The latest in electronic language teaching facilities are employed in the building's language laboratory. Included are the Language and Phonetics, English and American Literature, Classics, Four Freedoms, Philosophy, Renaissance, Germanic and Asian Studies Halls.

Slosberg Music Center

Recently completed construction doubles the office, classroom and practice room space in Slosberg Music Center at the entrance to campus. It has its own library and a recital hall which seats 250 with carefully designed acoustical treatment. Slosberg Recital Hall is the location for the University's rich program of chamber music concerts and solo performances.

Sydeman Hall

This annex to Ford Hall houses laboratories, classrooms, faculty offices and the mathematics library.

Ullman Amphitheatre

Utilizing a natural bowl below the grape arbor and science buildings, the Amphitheatre has a complete stage with full lighting equipment and orchestra pit, classrooms and faculty offices. It is the present center of theatre activity and is the colorful setting for University convocations and commencements.

Woodruff Hall

Situated in the center of the campus, this white brick building houses the Florence Heller Graduate School for Advanced Studies in Social Welfare.

Athletic Facilities

Memphis Tract

A twenty-six acre area on the east edge of the campus, Memphis Tract contains the Shapiro Athletic Center, Marcus Field, Gordon Field and Rieger Tennis Courts.

Gordon Field

One of the nation's most modern tracks rings Gordon Field where the University's track and field squad plays host to teams from throughout the east. The central area provides playing fields for the University's intramural football teams and specialized accommodations for intercollegiate field events.

Marcus Playing Field

Brandeis' international student body has won respect for its soccer prowess on Marcus Playing Field, which also contains the varsity and practice baseball diamonds and a softball diamond.

Shapiro Athletic Center

Throughout the school year the main gymnasium operates day and night with varsity and intramural competition as well as physical education activities. The gymnasium is also used for public lectures, student dances, and major conferences. In addition, classrooms, offices for the physical education faculty, team, and physiotherapy rooms and dressing rooms are included in Shapiro Athletic Center.

Rieger Tennis Courts

The Rieger Tennis Courts are the scene of informal as well as intramural and intercollegiate tennis competition. They are located to the rear of the Shapiro Athletic Center.

Residence Halls

Campus living accommodations consist predominantly of double rooms, some single rooms and larger quarters. Each residence hall has its own lounge or lounges. Modern laundry and other conveniences are available to all students. Each resident student should bring blankets, lamps and such rugs and decorations as are desired. Arrangements for linen and towel service may be made through the University.

East Quadrangle

The most recently completed residence halls on campus are those in the East Quadrangle. These include Hassenfeld House, Rubenstein Hall, Pomerantz Hall and Shapiro Brothers Hall. A large central lounge serves all of these buildings, and the entire area is complemented by the Benjamin and Mae Swig Student Center which includes a dining hall and lounge facilities.

Hamilton Quadrangle

Consisting of Shapiro, DeRoy, Renfield and Usen Residence Halls, and the Sherman Student Center, this is a major housing and recreational area. Each unit has functionally equipped rooms with maximum living and closet space. Ground floor lounges overlook the central quadrangle and the walks encircling Anne J. Kane Reflecting Pool.

Leon Court

Leon Court, a residence area, has four dormitories and a large student center-dining hall grouped around an attractive, wooded quadrangle. Each dormitory unit contains fully equipped student rooms, a lounge and large recreation room. Dormitories in this quadrangle have been designated the Scheffres, Gordon, Cable and Reitman Halls. The student dining hall is Milton and Hattie Kutz Hall.

Ridgewood Quadrangle

Emerman, Fruchtmann, Danciger, Allen and Rosen Residence Halls comprise the University's living areas for graduate students on the south campus. Each hall has two lounges opening on the quadrangle.

Sherman
Student Center



The Castle

An imposing structure designed after medieval architecture and completed a decade before Brandeis was founded, the Castle has been remodelled into single, double and larger rooms for women. Its ground floor houses the University Snack Bar and the student-operated coffee shop, *Cholmondeley's*.

Schwartz Residence Hall

This companion structure to the Castle, houses women. Its lounge, a retreat for reading, relaxation and entertainment, is furnished in contemporary style.

Sherman Student Center

The glass walls of Sherman Student Center rise from the ground level to roof, overlooking Hamilton Quadrangle and the Kane Reflecting Pool. Its ground floor dining hall serves several hundred students daily and is frequently utilized as a banquet hall for major University functions. Along the upper level are located a large lounge, game room and two smaller dining rooms. Bulletin boards of these rooms serve as the major communications center for student activities and the walls frequently are hung with special art exhibits. Dances, parties and meetings often occupy the entire building on busy evenings.



Themis House

Special seminars, conferences and symposia are housed at Themis House, located in Weston, Mass., a few minutes from the campus. Thirty to forty participants may be accommodated for food and lodging at this University conference site, made available by Mr. and Mrs. Boice Gross.

Feldberg Lounge

Spacious and comfortable, this glass and brick walled lounge is used for informal discussions, lectures, songfests and conferences and is a favorite meeting place between classes. Works of art by student and professional artists are on constant exhibit.

Kutz Hall

A towering ceiling, attractive furnishings, a site overlooking Greater Boston, make Kutz Hall a versatile and popular student dining hall. Banquets seating 500 are held on its main floor. An outdoor terrace and commodious balcony provide unusual settings for receptions and student social activities. Folding walls under the balcony permit creation of private rooms for dinner meetings of student or faculty groups. The towering north wall of Kutz Hall mirrors the rest of Leon Court in its more than 8000 square feet of glass.

Swig Student Center

The attractively furnished Benjamin and Mae Swig Student Center, just completed in the East Quadrangle, provides dining facilities for 330 students as well as lounge and terrace for student receptions and social activities. It also includes a private dining room for dinner meetings of student groups. The Benjamin and Mae Swig Student Center is connected to the dormitories of the East Quadrangle by a bridged walk.

Mailman Hall

This striking glass, brick and granite structure provides spacious lounges, modern recreational rooms and facilities for the display of painting and sculpture. A recently completed addition to this building includes student publication offices, the campus radio station, offices and meeting rooms for the Student Council and other student organizations.

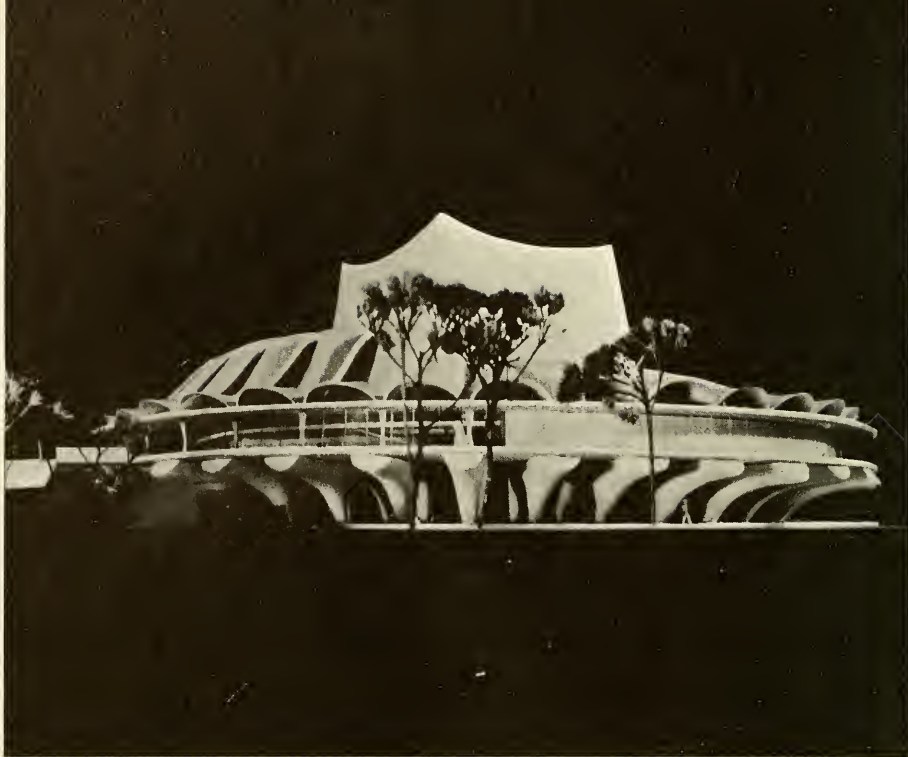
Usen Commons

Greater Boston spreads out in a panoramic view from the windows of Usen Commons, a circular, conservatory style lounge on the second level of the Castle. Since the earliest days of the University, this lounge has been familiar to Brandeis students as ideal for small dances and social functions.

Dining Halls

University dining halls are located in Kutz Hall, Benjamin and Mae Swig Student Center and Sherman Student Center. A separate kitchen is maintained in Sherman Student Center for those wishing special dietary meals. In addition, light refreshments are provided in the Castle Snack Bar and *Cholmondeley's*.





Spingold Theatre . . . now under construction

Stoneman Infirmary

On the forward slope of the campus, near the Castle, the Infirmary houses a first aid treatment room, lounge, out-patient clinic, four consulting suites, and rooms for twenty-four bed patients. A recently completed new wing increased patient capacity by fifty percent.

The Three Chapels

Assuming that worship is a matter of mood and spiritual climate, not limited to words or ceremonies, the University's Harlan, Berlin and Bethlehem Chapels serve the Protestant, Jewish and Catholic faiths. A centrally located pulpit serves a large outdoor area where shared functions such as Baccalaureate are celebrated. Student organizations responsible for services are the B'nai B'rith Hillel Foundation, Newman Club and Student Christian Association. Each has its own chaplain.

Campus Landscape Architecture

Under a special grant from David and Irene Schwartz, funds have been provided for a systematic landscaping of the campus to achieve a harmony between the terrain's natural beauty and the building architecture as conceived and executed by some of the nation's noted architectural figures.

Facilities Under Construction

Spingold Theatre

In addition to a theatre auditorium, Spingold Theatre, now under construction, will contain workshops, design rooms, costume preparation and storage areas, seminar rooms, classrooms, faculty offices, rehearsal and dressing rooms, a little theatre and a dance studio. It will be completely equipped to meet the needs of instruction in all aspects of the theatre arts. The great lobby will be designed to exhibit art treasures. The Spingold Theatre is located on the southwest campus which has been designated for the complementary development of the University's creative arts teaching facilities.

Gerstenzang Science Quadrangle

When completed, Gerstenzang Science Quadrangle, now under construction, will triple the University's facilities for scientific investigation. The Quadrangle will comprise five teaching and research buildings, erected around a science library and lecture-demonstration auditorium. Gerstenzang Science Library will contain stacks for 250,000 volumes, along with facilities for preparation and use of microfilms, a periodical room and journal reading area, office and other library administration facilities. The lecture-demonstration halls will be constructed as amphitheatres, one seating 300 and the other 100. Units included in the quadrangle will be Bassine Biology Center, Abelson-Getz Physics Building, Bass Physics Building, Harry Edison Chemistry Building, Goldsmith Mathematics Center, Lecks Chemistry Building and Segal Physics Building.

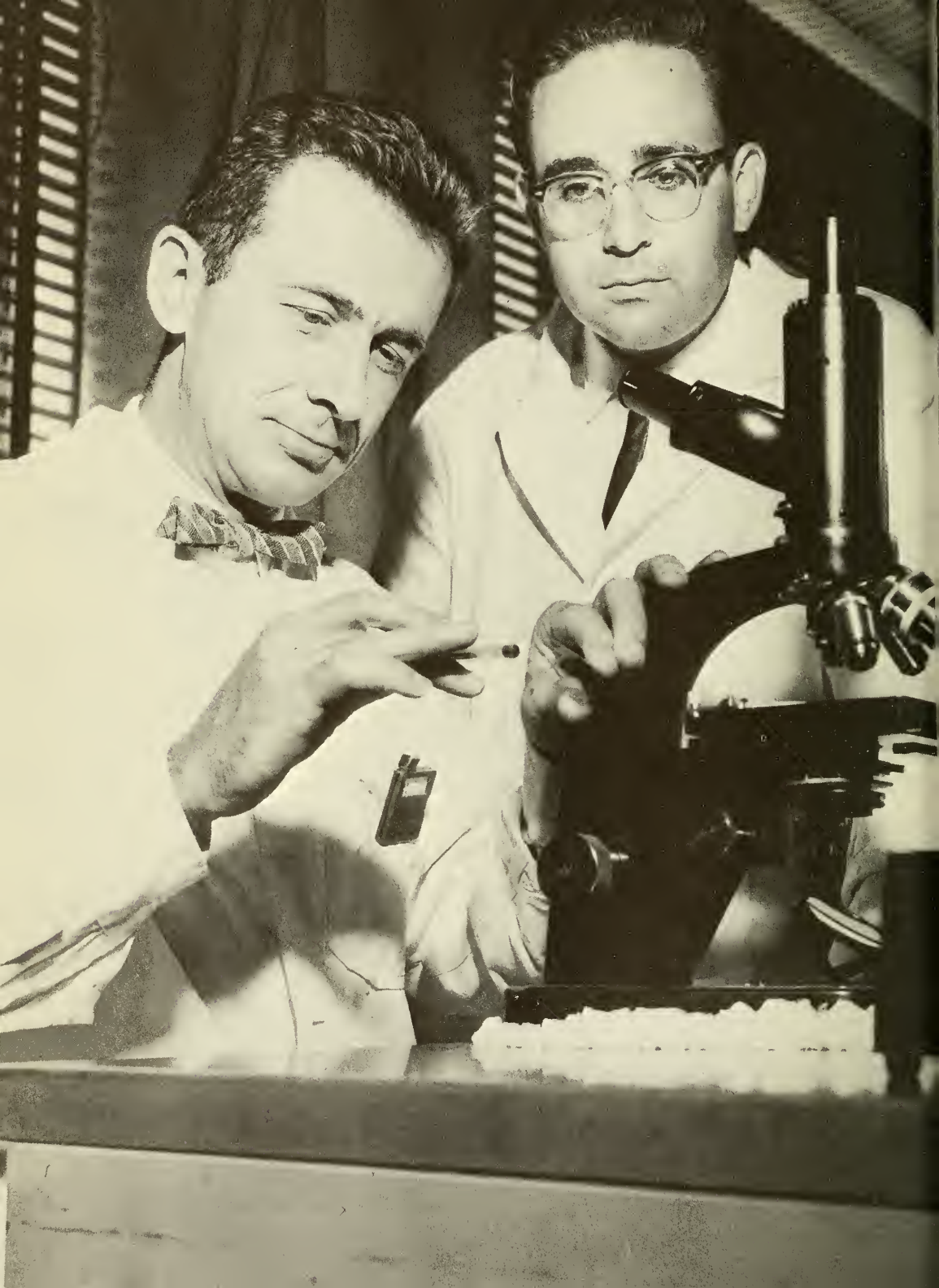
Projected Facilities

Biochemistry Research Center

A new Biochemistry Research Center is currently being designed. It is to be located behind the existing Friedland Research Center and will be joined to this building on all floors. The Biochemistry Research Center will provide additional modern laboratories in which will be conducted research in biochemistry and related life sciences.

Heller School Building

A new structure to house the Florence Heller Graduate School for Advanced Studies in Social Welfare is currently being planned. This building to be located adjacent to the Olin-Sang American Civilization Center will provide seminar rooms, research offices and work rooms and faculty offices. When completed this building will house, under a single roof, all of the teaching as well as the multi-faceted research programs being done by the Heller School.



The Graduate School of Arts and Sciences



General Information

History and Organization

The Graduate School of Arts and Sciences was formally established in 1953 when the University Board of Trustees authorized graduate study in the Departments of Chemistry, Music, Psychology, and Near Eastern and Judaic Studies. The first Master of Arts degree was conferred in 1954; the first Master of Fine Arts degree, in 1954; and the first Doctor of Philosophy degree in 1957.

The general direction of the Graduate School is vested in a Graduate Council of the Faculty composed of the President and the Dean of Faculty, ex officio; the Dean of the Graduate School; and one representative, usually the chairman, of each of the several University departments and committees offering graduate instruction. The members of the Graduate Council are appointed by the President on the recommendation of the Dean of the Graduate School. The functions of the Graduate Council, exercised in consonance with University policy, are to determine requirements for admission; to provide programs of study and examinations; to establish and maintain requirements for graduate degrees; to approve candidacy for degrees; to make recommendations for degrees; to make recommendations for new areas of graduate study; to lay down such regulations as may be considered necessary or expedient for governing the Graduate School; and to exercise a general supervision over its affairs. The Dean of the Graduate School is the chairman of the Graduate Council and the chief executive officer of the Graduate School.

Objectives

The underlying ideal of the Graduate School is to assemble a community of scholars, scientists and artists, in whose company the student-scholar can pursue studies and research as an apprentice. This objective is to be attained by individualizing programs of study, restricting the number of students accepted, maintaining continual contact between students and faculty, and fostering the intellectual potential of each student.

Degrees will be granted on the evidence of intellectual growth and development, rather than solely on the basis of formal course credits. Fulfillment of the minimum requirements set forth below cannot, therefore, be regarded as the sole requisite for degrees.

Areas of Graduate Study

During the academic year 1963-64, graduate programs will be offered in the following areas:

- | | |
|------------------------------------|--|
| 1. Anthropology | 9. Mathematics |
| 2. Biochemistry | 10. Mediterranean Studies |
| 3. Biology | 11. Music |
| 4. Biophysics | 12. Near Eastern and Judaic Studies |
| 5. Chemistry | 13. Physics |
| 6. Contemporary Jewish Studies | 14. Psychology |
| 7. English and American Literature | 15. Sociology |
| 8. History of Ideas | 16. History of American Civilization
(to begin 1964-65) |

Details of the programs and courses offered in these areas are given below. In succeeding years, the graduate program will be extended to cover other areas.

Graduate study in Social Welfare is offered by the Florence Heller Graduate School for Advanced Studies in Social Welfare. For information concerning this area of study, see the catalog of that school.

Graduate School Office

The Graduate School Office is located in the Rabb Graduate Center, room 104 and rooms 107 to 111. The office is open Monday through Friday from 9 A.M. to 5 P.M. All requests for information, catalogs and application forms should be addressed to the Dean of the Graduate School of Arts and Sciences, Brandeis University, Waltham, Massachusetts 02154.

Housing

The University offers only limited graduate housing facilities. The Off-Campus Housing Bureau, located in Gryzmish Academic Center, attempts

to serve as a clearinghouse for rooms, apartments and houses available in Waltham and near-by Greater Boston communities.

Dining Facilities

Graduate students may sign for the twenty-one meal contract or the fifteen-meal contract in either Kutz Hall or the Sherman Student Center Dining Hall. Arrangements must be made with the Steward's Office. A separate kitchen is maintained in the Sherman Student Center for those wishing special dietary meals. Individual meals may be purchased at either dining hall. Light snacks are served at the Castle Snack Bar.

Placement Office

The Placement Office will assist any graduate student who seriously needs and desires part-time work. Students seeking part-time work should register with the Placement Office. New students will not be guaranteed or assigned work prior to arrival on campus. Part-time employment must be limited to a maximum of fifteen hours of work a week.

No graduate student who receives financial assistance from the University may accept part-time employment without the prior approval of the chairman of his department and the Dean of the Graduate School.

The on-campus, part-time student rate of pay is from \$1.00 to \$1.50 for graduate students depending on skill, and on the amount of time worked for a department. Students can expect to earn from \$200 to \$400 in the course of a year. Temporary jobs on a day-to-day basis are also available.

The Placement Office also provides career planning and placement services for seniors, graduate students and alumni.

The University Health Office

The Medical Director and his staff are responsible for supervision of the physical welfare of students, including the establishment and enforcement of infirmary regulations. Payment of the required medical fee entitles students to treatment available in the David Stoneman Infirmary, and to participate in the benefits of the Student Health Plan.

New students in the college as well as the graduate schools are responsible for submission of a health examination report and meeting all requirements of the Health Office. These include a certificate of inoculation against smallpox, evidence of tetanus immunization and, if possible complete immunization against poliomyelitis. Since students are not permitted to register until these requirements have been satisfied, it is strongly recommended that reports be submitted at least two months before registra-

tion. All new students must report for physical examinations at the beginning of the academic year.

The health insurance program helps defray expenses during the academic year only (September to June) for treatment beyond the scope of the Health Office. Insurance providing coverage for the summer period is available to students on an optional basis. A brochure outlining the details of this program is distributed to each student at registration. Students are urgently requested to read this brochure. It should be noted here, however, that coverage is not provided for pre-existing conditions, extraordinary cases, psychiatric treatment, optical and dental services or special materials.

Within the limitations of the insurance coverage, fees of outside doctors and hospitals will be processed for payment only when consultations or hospitalization have been authorized by the University Health Office in advance on a form provided for this purpose. The University is not responsible for off-campus medical and hospital care sought by students or their parents on their own initiative, or for outside care of consultation which has been recommended but not authorized by the Health Office.

Effective September 1964, the Health Insurance Program will be extended to cover a twelve month period. Provision will also be made for married students to insure their families, if they so desire. A brochure explaining the details of this new program will be available from the Health Office or the Graduate School Office in the spring of 1964.

Admission

As a general rule only well-qualified men and women who have completed the normal four-year program leading to the Bachelor's degree will be considered for admission to the Graduate School. Graduates of foreign schools and others who have completed the equivalent of a Bachelor's degree program may apply, describing the educational program they have completed.

Testing

Applicants for admission to the graduate areas in biochemistry, biophysics, chemistry and psychology are required to take the Graduate Record Examination, including the aptitude test portion, and preferably one advanced test in a field related to the proposed area of graduate study. Applicants for admission to the graduate area in psychology must also take the Miller Analogies Test. All other applicants for admission are urged to take the Graduate Record Examination. Information concerning the Graduate Rec-

ord Examination is available from the Educational Testing Service, 200 Nassau Street, Princeton, New Jersey, or 4640 Hollywood Boulevard, Los Angeles 27, California. The following testing dates have been announced: November 16, 1963, January 18, March 7, April 25, and July 11, 1964. Prior registration is mandatory. Deadline dates are November 1, 1963, January 3, February 21, April 10, and June 26, 1964.

Application

Specific requirements established by each area of study are to be found below. Each applicant should consult these requirements prior to filing an application. One who seeks admission to the Graduate School should write to the Dean of the Graduate School of Arts and Sciences, stating which area of study he or she wishes to pursue. A catalog and appropriate forms will be forwarded to the applicant. The "Application for Admission" and, if needed, the "Application for Financial Aid" should be completed and returned in duplicate as soon as possible. The closing date for receipt of applications for admission is the first business day in March, though exceptions may be made. Applicants requesting financial aid should file as early as possible. Applications for admission for the Spring Term must be filed by December 15. It is not always possible to admit students at midyear in all departments. Students entering at midyear are not normally eligible for financial aid.

The applicant is required to arrange for forwarding official transcripts, in duplicate, of all undergraduate work and graduate work, if any. In addition, he must have forwarded, on forms provided by the Graduate School, two letters of recommendation, preferably from professors with whom the applicant has studied in the field of his proposed area of study. An applicant who has engaged in graduate study elsewhere should request at least one of the recommendations from a professor with whom he has done graduate work.

Applicants for admission to the Graduate Department of Music in the field of composition and to the graduate Department of English and American Literature must also submit samples of their written work.

All applications for admission must be accompanied by an application fee of \$10.00, payable by check or money order to Brandeis University. No application will be processed until this fee is paid.

Admission Procedure

All applications are considered on a competitive basis. The number of students who can be admitted each year in each department is limited so that the Graduate School may operate effectively under its distinctive principles

of individualized study and apprenticeship. Consequently, admission may sometimes be denied to qualified persons. The minimum standards of admission merely determine whether the applicant will qualify for a place in the group from which final selections will be made. Selections are based on the applicant's ability to do graduate work of high quality, as shown by the distinction of his previous record, particularly in his proposed area of study; by the confidential letters of recommendation submitted in support of his application; and by his adaptability to the particular graduate programs offered by Brandeis University. In addition, knowledge of foreign languages, relevant practical experience in the field, samples of work, the results of the Graduate Record Examination, and indications of character are considered. In order for the results of the Graduate Record Examination to be considered, the applicant should take the examination no later than January, 1964.

Each application for admission with all supporting records is first examined by the department or committee responsible for the graduate area to which the applicant seeks admittance. The department or committee recommends to the Dean of the Graduate School which applicants should be selected for admission and for financial aid. The Dean, in association with the Faculty Committee on Admissions and Awards, reviews all applications in the light of departmental recommendations, and, on behalf of the Committee on Admissions and Awards, informs each applicant of the results of the competition. Applicants for admission will be notified by April 1.

Acceptance

A student who has been accepted for admission to the Graduate School will be notified by a letter specifying the date by which he must accept the offer of admission and awards, if any. If a student selected for admission indicates that he does not intend to accept the offer, or if he fails to reply by the date specified, his admission expires and another applicant may be accepted in his place.

Brandeis University subscribes to the "Resolution Regarding Scholars, Fellows, and Graduate Assistants" of the Association of Graduate Schools of North America. The resolution states:

"In every case in which a graduate assistantship, scholarship, or fellowship for the next academic year is offered to an actual or prospective graduate student, the student, if he indicates his acceptance before April 15, will have complete freedom through April 15 to submit in writing a resignation of his appointment in order to accept another graduate assistantship, scholarship, or fellowship. However, an acceptance given or left in force after April 15 commits him not to accept an-

other appointment without first obtaining formal release for the purpose."

Students who are accepted must provide the Graduate School Office with an official final transcript of their undergraduate record and of any graduate work in progress at the time of acceptance. In addition, students who are accepted are required to complete and return a Medical Questionnaire and a health insurance form, which will be sent with notification of acceptance. All acceptances are conditioned on subsequent approval by the University Health Office. All persons admitted to the Graduate School must give evidence of their physical and psychological capacity to carry on their studies.

If, after having been admitted, a student cannot attend, he should notify the Dean of the Graduate School as soon as possible. If such a student wishes to be admitted for a subsequent academic year, he must request reactivation of his application at the appropriate time, and bring it up to date.

An applicant who has been denied admission may reapply in a later year, particularly if he has had further training which would strengthen his application or if he can submit additional letters of recommendation.

Admission to the Graduate School does not imply that the successful applicant has been accepted as a candidate for a graduate degree. Superior performance at Brandeis University is essential. Admission to candidacy for the M.A. or M.F.A. is granted by the graduate department or committee administering the program of study. Admission to candidacy for the Ph.D. is granted by the Graduate Council on the recommendation of the Department or Committee administering the program of study.

Readmission

Admission is valid only for one academic year. A student's record is reviewed annually, and he may be denied readmission. Students completing the requirements for the M.A. or M.F.A., and students who already hold a Master's degree but who have not yet been admitted to candidacy for the doctorate, must make formal application for readmission by the first business day in April of each year if not requesting financial aid, or by the first business day in March if requesting financial aid. The application for readmission must be filed with the Graduate School Office.

Foreign Students

Graduates of foreign colleges and universities who have completed the equivalent of an American Bachelor's degree may apply for admission and

for financial assistance. Foreign applicants should enclose with the official "Application for Admission" original documents or official certified copies indicating the nature and scope of their formal educational background.

A student whose native language is not English should not apply unless he can write, speak and understand English with enough competence to pursue a regular program of graduate study in an American university. Nor should a foreign student apply for admission unless he has the financial ability to support himself in the United States. For this purpose a sum of at least \$2,400 will be necessary for the nine-month academic year, exclusive of expenses for travel, summer or vacation.

Of the large number of foreign applicants who apply annually, financial assistance is available to only a few of the outstanding. Scholarships cover only tuition costs. Fellowships and teaching assistantships are helpful in meeting subsistence expenses. The total assistance offered, however, is usually sufficient to cover only a portion of the student's total expenses. A foreign applicant who has not had training in an American institution of higher learning will be at a disadvantage in competing for scholarships and fellowships. Teaching assistantships are rarely awarded to foreign applicants in their first year of graduate study.

A limited number of foreign applicants are accepted through the Wien International Scholarship Program, which provides financial assistance to highly qualified graduate degree candidates. A complete description of this program may be found on page 14 of this catalog.

It would be wise for foreign applicants who are not in the United States at the time of application to seek the assistance of the Institute of International Education. The Institute has access to funds for the aid of foreign students and helps place them at suitable universities. For information write to the Institute of International Education, 1 East 67th Street, New York 21, New York. Students from Great Britain may apply through the English Speaking Union, whose central office is in London. The Fellowship Commission of the United States Information Service and the local American Embassy have information on travel grants for foreign students. In any case, foreign applicants are advised to apply to several American universities.

An application fee of \$10.00 should accompany the foreign student's "Application for Admission." No application will be processed until the application fee is paid. A foreign student who is registering in the Graduate School for the first time or reregistering after a leave of absence must see the counsellor for foreign students before registration and must present to him for inspection his passport and visa. The counsellor will assist in all matters connected with U.S. immigration regulations.

The counsellor for foreign students is Mr. C. Ruggles Smith, whose office is located in the Bernstein-Marcus Administration Center, Room 202.

A foreign student who enters the United States on a student "F" visa is expected to register at the college or university which admitted him and is the destination for which his visa was obtained. Should a foreign student be admitted to the Graduate School of Brandeis University from another American university, he must visit the District Immigration Office in the area of the school from which he is transferring and present a letter from that school stating that he has been successfully pursuing a full course of study and that there is no objection to the transfer. He must also present his acceptance letter from the Graduate School of Brandeis University.

Employment may be granted to an "F" visa student during the school year in three situations: (1) if he has been granted permission for on-campus employment as a condition of admission, as indicated on the original Form I 20A provided by the University; (2) if his employment consists of practical training in his field of study; or (3) if his financial situation has changed since his admission, and he has been granted permission for employment, with the approval of the University, by the Immigration and Naturalization Service. Each year the Immigration and Naturalization Service delegates to the University the privilege of granting permission, on the basis of economic necessity, to "F" visa students for employment during the summer vacations. Permission for employment cannot be granted to Exchange Visitor "J" visa students, unless the employment is practical training that is part of the program of instruction.



Academic Regulations

Registration

Every resident student must register in person at the beginning of each semester, whether the student is attending regular courses of study, carrying on research or independent reading, writing a thesis or dissertation, or utilizing any academic service or facility of the University. Students who have completed their residence requirements and who wish to utilize any academic service or facility of the University must also register.

There is a charge of \$10.00 if registration is not completed at the time specified in the Academic Calendar for the Graduate School.

Registration consists of payment of all fees for the semester and filing a program card and other required forms duly filled out.

Program of Study

Before filing his Program Card, the student should plan his program of study in consultation with the chairman of his department. All courses for which the student registers for credit must be listed on the Program Card.

Audited courses must also be listed, noted as "audit," and the Program Card must be signed by instructors of such courses.

A graduate student may not normally register for an undergraduate course (numbered below 100) in his own area for degree or residence credit unless he secures the signed approval of both the instructor of that course and his department chairman. The student must then petition the Dean of the Graduate School for the desired credit, and must receive his approval before or at the time of registration. Credit will not be given for undergraduate courses taken to make up deficiencies in the student's preparation for a graduate program of studies, nor will credit ordinarily be given for language courses that are not part of the student's program of studies. Under no circumstances may a student receive credit toward completion of degree or residence requirements for courses undertaken to aid in the completion of language requirements. Scholarship students may not apply their scholarships toward the remission of tuition for undergraduate courses taken to remedy deficiencies. The completed Program Card must be signed by the department chairman before submission at registration, and the department chairman will certify whether the program of study is full-time or part-time and, if part-time, whether one-quarter, one-half, or three-quarters time. Full-year courses must be re-entered on the program card at Spring Registration, and ordinarily they may not be dropped at midyear. A student wishing to

drop a full-year course at midyear must petition the Dean of the Graduate School for permission, after receiving the written approval of the instructor of the course and of the chairman of his department. No student may register at midyear for a full-year course without the written approval of the instructor of the course and his department chairman.

Auditing Courses

The privilege of auditing courses without fee is extended to all regularly enrolled graduate students except those classified as special students. Special students may audit courses by paying for them at the same rate as those taken for credit. No course may be audited without the permission of the instructor. An auditor is merely a listener. He may not participate in any class work, nor take examinations, nor receive evaluation from the instructor; no credit is granted for an audited course.

Change of Program

A registered student who wishes to drop or add a course or alter his program of study must obtain a Course Change Card from the Graduate School Office and return it when properly filled out. Credit will not otherwise be given for the courses changed. In addition, a student must change his program within the specified time limits stated in the current academic calendar, or he will be subject to a \$10.00 fine.

Registration in Terms of Time

An advanced student—one who has completed one full year of residence, either by graduate work at Brandeis or by receiving credit for graduate work done elsewhere—may register in terms of time, subject to the signed approval of his department chairman. His Program Card must indicate that he is registering full-time or a specific fraction thereof (one-quarter, one-half, or three-quarters).

Registration in terms of time is a device that helps to individualize programs of study and permits increased freedom for independent research for the advanced graduate student. Registration in terms of time frees the student to pursue a program of study that partially accepts or bypasses altogether the system of formal courses, although a student registering in terms of time will usually register for an advanced research or dissertation course. His time will be spent in such research and reading as will be most beneficial to his development as a scholar.

Absence from Examinations

A student who is absent from a midyear or final examination without an accepted excuse will receive a failing grade for that examination. No student may be excused from such examination unless for emergency or medical reasons, nor may he be excused if he was able to notify the instructor in advance and failed to do so. Cases involving absence are referred to the chairman of the department. The department will decide whether a make-up examination shall be allowed. If a make-up examination is allowed, the instructor will notify the Dean of the Graduate School, who will arrange for its administration.

Grades and Course Standards

Graduate students are expected to maintain records of distinction in all courses. Letter grades will be used in all courses in which grading is possible. In thesis or research courses, if a letter grade cannot be given at the end of every semester or academic year, "Credit" or "No Credit" may be used. "No Credit" and any letter grade below "B-minus" are unsatisfactory grades in the Graduate School. A course in which the student receives an unsatisfactory grade will not be counted toward graduate credit. Courses graded "Non-credit" are those which carry no credit and which are required of the student. At the end of each academic year the Graduate School will issue to all registered students a report of their grades and of degree requirements that have been satisfactorily completed.

Incompletes

A student who has not completed the research or written work for any course may receive a grade of "Inc." (incomplete) or a grade of failure at the discretion of the instructor in the course. A student who receives a grade of "Inc." must satisfactorily complete the work of the course in which the "Inc." was given in order to receive credit for the course and a letter grade. An "Inc.," unless given by reason of the student's failure to attend a final examination, must be made up no later than the end of the term following the term in which it was received. When failure to take a final examination has resulted in an "Inc.," resolution of that grade to a letter grade must occur within six weeks of the beginning of the next academic semester or the potential course credit will be lost. If a student requires additional time to settle an incomplete grade, he may petition the Dean of the Graduate School for an extension of time, provided the petition is signed by the instructor of the course and by the department chairman. Such a petition must be filed prior to the expiration of the deadline for making up an incomplete.

Credit for Work Done Elsewhere

Graduate work taken elsewhere may not be counted toward fulfillment of the residence requirement at Brandeis University for the degree of Master of Arts, although a department may accept work taken elsewhere in partial fulfillment of specific course requirements for the degree. Not more than one semester of residence credit for work taken elsewhere may be counted toward fulfillment of the residence requirement for the degree of Master of Fine Arts. Not more than one year of residence credit for work taken elsewhere may be counted toward fulfillment of the residence requirement for the degree of Doctor of Philosophy.

A student admitted to a Ph.D. program at Brandeis University who has done graduate work elsewhere may file an application to have his work at that institution counted toward fulfillment of residence requirements. However, language requirements, qualifying and comprehensive examinations, the dissertation and the final oral examination, and other such requirements, must be fulfilled while enrolled at Brandeis.

To be eligible to receive credit toward fulfillment of residence requirements for work taken elsewhere, a student must complete at least one semester's residence at Brandeis as a full-time student. He may then file an "Application for Credit for Graduate Work Done Elsewhere." The completed application should be submitted to the Graduate School Office, which will advise the student of the action taken on his application. An applicant will not necessarily be given the credit he requests. Each department reserves the right to require of any student work in excess of its minimum standards to assure thorough mastery of his area of study. In any case, every candidate for the Ph.D. degree must complete at least one year of residence at Brandeis as a full-time student, or the equivalent thereof in part-time study.

Residence Requirements

Residence requirements for all graduate degrees are computed by determining the amount of registration for credit and the tuition charges. Part-time students and teaching assistants pursuing part-time programs of study for credit complete their residence requirement when their fractional programs (one-quarter, one-half, three-quarters) total the amount required of a full-time student for any given degree.

Master of Arts

The minimum residence requirement for all students is one academic year on a full-time graduate credit program at the full tuition rate, or the equivalent thereof in part-time study.

Master of Fine Arts

The minimum residence requirement for all students is three academic semesters on a full-time graduate credit program for each semester, at the full tuition rate for each semester, or the equivalent thereof in part-time study.

Doctor of Philosophy

The minimum residence requirement for all students is two academic years on a full-time graduate credit program for each year, at the full-tuition rate for each year, or the equivalent thereof in part-time study.

Full-Time Resident Students

A full-time student is one who devotes his entire time, during the course of the academic year, to a program of graduate work at Brandeis University, to the exclusion of any occupation or employment. In exceptional cases, however, a student may accept outside employment with the approval of his department chairman.

A full-time program may include a combination of teaching and research assistance, work leading to the fulfillment of degree requirements, such as preparation for qualifying, comprehensive, and final examinations, or supervised reading and research, or the writing of M.A. theses and Ph.D. dissertations, as well as regular course work.

A full-time resident student may take as many courses for credit in any semester as are approved by his department chairman, but no student may receive credit for, nor be charged for, more than a full-time program in any semester. Thus the minimum residence requirement for any degree may not be satisfied by an accelerated program of study nor by payment of more than the full-time tuition rate.

Ph.D. candidates and students for whom the M.A. and M.F.A. degrees are terminal degrees may continue as full-time students on completion of their residence requirements by registering at the post-residence fee (see p. 57).

Part-Time Resident Students

A part-time student is one who devotes less than his entire time to a program of graduate work at Brandeis University. He may register for a credit program of one-quarter, one-half, or three-quarters time. A part-time student may engage in outside employment with the permission of his department chairman, who may restrict the time permitted for such employment.

Students wishing to pursue part-time resident study leading to a gradu-

ate degree must explain in writing, at the time they seek admission, why full-time study is not possible. An enrolled student receiving financial aid from the University, who wishes to change his status from a full-time to a part-time resident, must file with the Graduate School Office an explanation of why full-time study is no longer possible.

Post-Resident Students

A graduate student who has completed residence requirements and who registers in order to utilize academic services or University facilities while completing degree requirements is a post-resident student.

Special Students

On occasion, properly qualified persons who wish to audit or to take courses without working for a degree will be admitted. Special students are ineligible for University financial aid. A special student who later wishes to change his status to that of a part-time or full-time student working for a degree must apply for admission as a resident student. He must also file a special petition if he wishes credit to be accepted for any courses taken at Brandeis as a special student. Credit for such course work may be granted in exceptional cases.

Leave of Absence

Students who have not completed their residence requirements may petition for leave of absence. The petition must have the approval of both the chairman of the department and the Dean of the Graduate School. Leave of absence up to one year will normally be granted to students in good academic standing who present compelling personal reasons or need to do work off campus in connection with their graduate studies.

If for any reason a student must extend a leave of absence, he must request such extension in writing before his leave of absence expires. Failure to do so will result in being automatically dropped from the Graduate School roster.

Continuation

A graduate student who has completed residence requirements and who is not registered during the period in which he is completing degree requirements is considered a Continuation Student. A student in this category is not eligible for a leave of absence.

Withdrawal

A student who wishes to withdraw from the Graduate School at any time before the end of the academic year must give immediate written notice to his department chairman and to the Dean of the Graduate School. Failure to comply with this procedure for withdrawing may subject the student to dishonorable discharge, refusal of readmission, cancellation of the privilege of securing an official transcript of his record, and, in the case of a student withdrawing within 30 days of the beginning of classes, loss of eligibility for partial refund of tuition. Such a student must pay tuition for the full semester. Permission to withdraw will not be granted if the student has not discharged all financial indebtedness to the University or has not made arrangements for subsequent payment to the satisfaction of the Office of University Finance.

Exclusion, Dismissal or Expulsion

The University reserves the right to dismiss or exclude at any time any student whose character, conduct, academic standing or financial indebtedness it regards as undesirable, and without assigning any further reason therefor; neither the University nor any of its Trustees or officers shall be under any liability whatsoever for its disciplinary action, exclusion or dismissal.

The University also reserves the right to revoke, cancel or reduce at any time any financial or honorific award made to any graduate student, for character, conduct, academic standing or financial indebtedness regarded by the University as undesirable, and without assigning any further reason therefor; neither the University nor any of its Trustees or officers shall be under any liability whatsoever for cancelling, revoking or reducing any award.

General Degree Requirements

The following general requirements apply to the awarding of graduate degrees in all areas of study. For the specific requirements of each area of study, students should consult the appropriate section of this catalog.

Master of Arts

In order to qualify for a Master's degree, the student must complete the equivalent of one full year of graduate study at Brandeis University, ordinarily computed at a minimum of twenty-four semester hours of approved study. Each course meeting three hours per week grants three credits per

semester. Certain departments may at their option require more than twenty-four hours of graduate study. All departments offering Master's programs require that the candidate demonstrate a reading knowledge of at least one foreign language and pass satisfactorily a general or qualifying examination which, at the department's discretion, may be in one or more parts and may be written, oral, or both. Where a thesis is required for the Master's degree, two copies must be submitted to the department chairman in final form no later than January 3 for a February degree or May 1 for a June degree.

The Master's degree must be earned within four years from the inception of graduate study at Brandeis University.

Master of Fine Arts

In order to qualify for the degree of Master of Fine Arts in Music, the candidate must complete with distinction thirty-six semester hours of work at the graduate level, and must meet the language and other requirements for the degree outlined on pages 117, 118. Two copies of the thesis must be submitted to the department chairman in final form no later than January 3 for a February degree or May 1 for a June degree.

The Master of Fine Arts degree must be earned within five years from the inception of graduate study at Brandeis University.

Doctor of Philosophy

In order to qualify for the degree of Doctor of Philosophy, a student must ordinarily complete a minimum of three years of graduate study, including two full years of residence and a third year devoted to the preparation of a doctoral dissertation. Under certain conditions credit for advanced standing will be granted for work taken in residence in graduate schools of other universities. Each Department or Committee reserves the right to require prospective candidates for the degree to perform work in excess of its minimum standards to assure thorough mastery of the area.

Prospective candidates, except in Psychology, must demonstrate proficiency in at least two foreign languages. In all areas of study the student must satisfactorily pass a general or qualifying examination which, at the department's discretion, may be in one or more parts and may be written, oral, or both. In addition, all prospective candidates must write a doctoral dissertation and defend it in a final oral examination.

To be eligible for the receipt of the Ph.D. degree in any given year, the student must have (1) been admitted to candidacy for the doctorate, (2) completed all residence requirements, and (3) passed all language and qualifying examinations, by the close of the semester preceding the semester

in which the degree will be conferred. Doctoral dissertations must be submitted to department chairmen by December 1 for February degrees, and April 1 for June degrees. In addition, notification that the doctoral dissertation has been approved and that the dissertation examination has been passed must have been communicated to the Dean of the Graduate School no later than January 15 in the case of February degrees or May 15 in the case of June degrees.

Students entering Brandeis University with no previous graduate work must earn the Doctor's degree within eight years from the inception of study. Students who enter Brandeis University with a Master's degree shall be required to complete the Ph.D. in seven years.

Language Requirements

A reading knowledge of at least one foreign language is required of all students engaged in programs of study leading to the M.A. degree. A reading knowledge of at least two foreign languages is required of all students engaged in programs of study leading to the M.F.A. A reading knowledge of at least two foreign languages except in Psychology, is required of all students engaged in programs of study leading to the Ph.D. degree. Candidates for the Ph.D. degree in Music are required to have a reading knowledge of three foreign languages. Graduate departments may require degree candidates to demonstrate proficiency in additional languages. Each department determines which languages are acceptable as satisfying the foreign language requirements.

Students are expected to satisfy the language requirements as soon as possible. The completion of the language requirements at another university does not exempt the candidate from the Brandeis requirements. The Department of European Languages administers the language examinations for students in the English and American Literature, Mediterranean Studies, and Near Eastern and Judaic Studies programs. All other departments conduct their own language examinations.

Language examinations in French and German are offered by the Department of European Languages twice a year, in December and again in April. Departments conducting their own examinations arrange examinations by appointment. The student should present himself for at least one language examination during his first year of residence. French 199c and German 199c are offered to aid graduate students in preparing for their language examinations.

A student who has not passed an examination in at least one foreign language by the end of his first year of study will not be eligible for financial aid from the University for the second year.

All Ph.D. candidates must pass their second language examination no later than the semester preceding the semester in which the degree is to be conferred.

Many departments require that language examinations be passed at an earlier time than specified in these provisions. Special requirements will be found in the departmental statements included in this catalog.

Admission to Candidacy

A student who (a) has demonstrated a knowledge and mastery of the subject matter of his field at a level satisfactory to his Department or Committee; (b) has passed all departmental qualifying examinations; (c) has indicated a capacity for independent research of high quality; and (d) has satisfactorily completed all specific Department or Committee requirements for admission to candidacy may, at the recommendation of the Department or Committee, be admitted by the Graduate Council to candidacy for the degree of Doctor of Philosophy. In order to be eligible for the award of the degree, the student must be admitted to candidacy at least one semester before the degree is awarded.

Application for Graduate Degrees

Candidates for the M.A., M.F.A., and Ph.D. degrees must file with the Graduate School Office an application for the degree no later than December 1 for a February degree and no later than April 1 for a June degree of the academic year in which the degree is to be conferred. Upon the written recommendation by a candidate's Department or Committee that his application be approved, his record will be reviewed by the Graduate Council which recommends him to the University Faculty for the degree. In case of failure or withdrawal from candidacy in any year, the student must reapply by filing a new application in a later year.

Dissertation and Final Oral Examination

Two copies of the doctoral dissertation, as well as an abstract of the dissertation not to exceed six hundred words in length, should be submitted to the department or committee chairman no later than December 1 for a February degree and April 1 for a June degree of the academic year in which the Ph.D. degree is to be conferred. The style and format of all dissertations are determined by the respective departments. The chairman will then appoint two or more readers, besides the principal supervisor, to read the candidate's dissertation. Certification of the approval of the dissertation by these readers will be communicated to the Dean of the Graduate School

and to the chairman of the Department or Committee. The chairman will then schedule a final oral examination and notify both the Dean of the Graduate School and the candidate of the time and place of the examination at least three weeks prior to the scheduled date of the dissertation defense.

The dissertation, when approved by the readers, must then be deposited in the Office of the Graduate School, where it will be available to all interested members of the faculty for at least two weeks prior to the final oral examination.

The Dean of the Graduate School will publish in the *University Gazette* the time and place of a candidate's final oral examination and the title of his doctoral dissertation. The final oral examination will be open to any member of the faculty engaged in graduate instruction and to invited faculty members of other institutions.

The Examining Committee, recommended by the department chairman and approved by the Dean of the Graduate School must be composed of at least three members of the faculty. At least one member of the examining committee shall be from a graduate area outside the student's own, though preferably from a related area.

The examination may be restricted to a defense of the dissertation, or may cover the whole field of the dissertation. The candidate will be notified by his Department or Committee of his responsibility for coverage at the examination.

A report, signed by the Examining Committee, certifying the candidate's successful performance on the final oral examination, will be submitted to the Dean of the Graduate School no later than January 6 for a February degree or May 15 for a June degree of the year in which the degree is to be conferred.

Deposit and Publication of Dissertation

By January 31 for February degree candidates, or June 1 for June degree candidates, the candidate must deposit two copies of his finished dissertation, including the original typescript, in a state suitable for microfilm and Xerox publication. Both copies of the dissertation must have the signed approval of the dissertation supervisor and readers. One copy will be retained by the library, the other by the department, both in bound form. The candidate must also submit two copies of an abstract of the dissertation, not exceeding 600 words, which has been approved by the dissertation supervisor.

A detailed statement of the Graduate School publication regulations is available from the Graduate School Office. See also the statement in this catalog, under *Fees*, on the Final Doctoral Fee.

Fees

All fees are payable on the dates they are due. In exceptional cases, students may make prior arrangements with the Office of University Finance for installment payments. A candidate for a June degree must pay any outstanding indebtedness to the University by June 1, just prior to Commencement, or his name will be stricken from the rolls of degree candidates. Candidates for February degrees must pay any outstanding indebtedness by January 15 of the year in which the degree is conferred.

Payment of tuition and other fees due on the day of registration is a part of the registration procedure. A student who is not prepared to pay such fees on the day of registration and who has not made alternative arrangements for payment with the Office of University Finance will be refused the privilege of registration. A registered student who defaults in the payment of indebtedness to the University shall be subject to suspension, dismissal and refusal of a transfer of credits or issuance of a transcript. A student who has been suspended or dismissed for nonpayment of indebtedness to the University may not be reinstated until such indebtedness is paid in full.

Application Fee: \$10.00. Payable by all applicants for admission at the time the application for admission is submitted. Checks and money orders should be made payable to the order of Brandeis University. No application for admission will be processed until this fee is paid. This fee is not required of Brandeis graduates.

Tuition Fee: The fees for tuition in the Graduate School for 1963-64 are as follows:

Full-time resident students: \$1,500 per year, or \$750 per semester.

Part-time resident students:

<i>Per Semester</i>	<i>Per Year</i>	<i>Fraction Program of Study</i>
\$565	\$1,130	Three-quarters
\$375	\$ 750	One-half
\$190	\$ 380	One-quarter

Special Students: \$190 per course per semester.

Post-Residence Fee: Students who have completed their residence requirements and who wish to continue in residence to utilize any academic service or University facility must register at the usual tuition rates. Teaching assistants are exempt from this fee as a matter of professional courtesy. Graduate students whose tuition is not being paid from scholarship or fellowship funds awarded by the University or other sources may petition the Dean of the Graduate School for a reduction of the post-residence fee

to \$250. Students who continue to utilize any academic service or University facility after having completed residence, but who have failed to register, are subject to disciplinary action by the Dean of the Graduate School. A student who is eligible for registration on the post-residence basis may file a program card for full-time study, in terms of courses or in terms of time or any combination thereof, provided his department chairman approves of the program of study as being a full-time program and signs the program card.

Mixed Tuition Fee: In the event that a student needs to register for only a part-time program (one-quarter, one-half, or three-quarters) in order to complete his residence requirements, but wishes to register for additional courses or take a fuller program of study, he shall be charged for the part-time program needed to complete his residence, plus the post-residence fee.

Summer Tuition Fee: Brandeis University does not conduct a regular summer school session, however, special courses of study on an individual basis may be arranged for regular students. The tuition for graduate students who remain in residence for special summer programs of a twelve week duration is \$500.00, and of a nine week duration, \$350.00.

Late Registration Fee: \$10.00. Payable for failure to complete registration at the time announced by the Graduate School Office. (Consult the Academic Calendar.)

Change-of-Program Fee: \$10.00. Payable by any graduate student who wishes to change his program of study later than two weeks after the first meeting of classes in each semester.

Continuation Fee: \$10.00. Payable annually by graduate students who have completed residence requirements and who are not registered during the period in which they are preparing for the completion of degree requirements. Students in this category are not eligible for leave of absence.

Master's Fee: \$50.00. A candidate for the M.A. or the M.F.A. who is subject to the Continuation Fee and who submits a Master's thesis or takes a qualifying examination in any semester following one in which he has not been in residence, shall pay the Master's Fee. The fee is chargeable only once. The Continuation Fee will be applied toward payment of the Master's Fee.

Final Doctoral Fee: \$250. This fee covers all costs for the year in which the Ph.D. degree will be conferred, including the costs for the microfilm publication of the doctoral dissertation, the publication of the abstract of the dissertation in *Dissertation Abstracts*, copyright protection for the author if desired, issuance of a Library of Congress number and appropriate library cards, binding two copies of the dissertation for use in the Univer-

sity Library, and the Xerox-printed copies in book form for the author. The Final Doctoral Fee also covers the rental expenses for academic robes for the candidates at graduation and the cost of the diploma. Students who have been in residence in their final year may deduct any tuition charges which they may have paid to the University in that final year. Students who have paid the Continuation Fee in the final year may deduct that fee from the Final Doctoral Fee.

NOTE: All candidates for the Ph.D. degree must pay the \$250 Final Doctoral Fee prior to the receipt of their degrees. A candidate may, however, elect not to contract for the Xerox publication of his dissertation, and in lieu thereof may separately arrange for its publication either as a book or as articles in scholarly journals within twenty-four months following the award of the degree. On due evidence that the work has been published or is scheduled for publication within the required time, a rebate of \$150 of the Final Doctoral Fee may be authorized.

Reinstatement Fee: \$10.00. Payable by a student who, after suspension or dismissal, has been reinstated with the consent of the Dean of the Graduate School.

Transcript Fee: \$1.00. Students, former students and graduates who request official transcripts of their records in the Graduate School are charged \$1.00 for each copy issued after the first one, which is issued free of charge. Requests by mail for transcripts must be accompanied by a check in the correct amount, payable to Brandeis University. Resident students should pay the Cashier directly and present a receipt for payment to the Graduate School Office when requesting transcripts.

Diploma Fee: \$10.00. Payable by candidates for the M.A. and M.F.A. degrees.

Student Health Plan Fee: \$40.00. Payment of the mandatory medical fee entitles graduate students to utilize the facilities of the Health Office and to participate in the benefits of the University Student Health Plan during the academic year. The fee is payable at registration, and no portion is refundable.

Waiver of Fee: A waiver of the insurance requirement may be granted upon presentation by the student of a statement from his insurance company which certifies that similar coverage is in effect. This statement must be presented at the time of registration or the student will automatically be included under the University Student Health Plan and be billed \$40.00. A request for such waiver should be made by the student on the "Student Health Insurance" form mailed by the University with each notification of admission or readmission.



Exceptions: The University Student Health Plan is optional for special students.

Effective September 1964, the mandatory fee will be \$30.00 for the use of the facilities of the University Health Office for a twelve month period.

Health insurance coverage is also mandatory for graduate students, unless a waiver is requested, as indicated above. The fee for such insurance on a twelve month basis will be \$25.00 for unmarried graduate students and for married students who elect coverage for themselves only. Coverage for married students and their dependents will be available, also on a twelve month basis, at an additional cost.

Details of this program and of the optional coverage for dependents will be available in the spring of 1964 in a brochure obtainable from the Graduate School Office or the Office of University Finance.

Refunds

The only fee which may be refundable, in part, is the tuition fee. No refund of the tuition fee will be made because of illness, absence or dismissal during the academic year. If a student withdraws within 30 days from the beginning of classes, he may petition the Office of University Finance for a partial refund of tuition. A refund may be denied without any reason for such denial being stated.

Financial Assistance

To help students whose records indicate scholarly promise, the University makes available a variety of awards and work opportunities. No student is eligible for aid unless he files with the Graduate School Office an "Application for Financial Assistance" by the first business day in March. In exceptional circumstances applications received from prospective students later than this date may be given consideration. All scholarships and fellowships are granted for one academic year; therefore, a registered student who holds a scholarship or fellowship must apply for a renewal by filing the "Application for Financial Assistance" by the first business day in March.

Applicants for Jack Cohn Memorial Science Fellowships and for Charles Revson Science Fellowships must file their "Applications for Financial Assistance" by the first business day in February.

All awards are granted and accepted with the understanding that they may be revoked or reduced at any time for conduct or academic standing that may be regarded as undesirable.

No student may hold a fellowship or scholarship for more than two years of study for the M.A. degree, for more than three years of study for the M.F.A. degree, or for more than four years of study for the Ph.D. degree. No student may receive a scholarship or fellowship after one year of study at the post-residence fee. Part-time students are ineligible for fellowship awards, and are not ordinarily considered for scholarship awards. Teaching assistants who are part-time students may apply for scholarships. Priority in making awards is given to full-time students and teaching assistants. Awards are recommended by department chairmen to a faculty committee of which the Dean of the Graduate School is Chairman.

Scholarships

A scholarship is an award, on grounds of scholarly ability and need, of financial credit that may be used exclusively for remission of tuition fees. Full scholarships in the value of \$1,500 and partial scholarships are available. Scholarship students are liable for all fees, but tuition fees in the amount of a scholarship award shall not be charged.

Fellowships

A fellowship is an academic award of honor to outstanding students of good character to help them in furthering advanced study and research. Fellowships carry stipends ranging up to \$2,000 in the graduate programs in the humanities and social sciences and up to \$4,000 in the graduate science programs. The amount of the stipend depends on the quality of

the student's record and performance; need is also considered in most cases. A fellowship recipient must pay tuition fees unless he is also awarded a scholarship in an amount covering tuition. No services are required of students for fellowship or scholarship awards.

Jack Cohn Memorial Science Fellowships

Jack Cohn Fellowships, established in the memory of the founder of Columbia Pictures Corporation, provide full tuition and fees (excluding the Health Insurance fee) and a twelve month stipend up to \$3,000 for graduate students in the life sciences.

Annual awards will be made to science applicants with outstanding academic records and unusual promise of achievement in research connected with the life sciences. Jack Cohn Fellows will be selected by the President of the University and the Dean of the Graduate School from nominees recommended by a committee of distinguished scientists from the Brandeis faculty.

Special application forms are not necessary; only the regular Graduate School application for admission and financial aid need be filed.

Charles Revson Science Fellowships

Charles Revson Fellowships, established by the founder and president of Revlon, Inc., range in value from \$12,250 to \$15,250 over a three year period of graduate study. In addition to full tuition and fees (excluding the Health Insurance fee), annual stipends of \$3,000 for a twelve month tenure will be awarded to unmarried Revson Fellows and up to \$4,000 for married Fellows with children. Fellows will be appointed by the President of the University and the Dean of the Graduate School from nominees recommended by screening panels of outstanding scientists on the Brandeis faculty and at other institutions. Only students of the highest rank and greatest potential will be eligible for selection. Revson Fellowships will be awarded in the following areas of graduate study: biochemistry, biology, biophysics, chemistry, mathematics, physics and psychology. Normally three year appointments will be made for students beginning graduate study, although every Fellow's performance will be evaluated annually to determine whether his award shall be renewed. In exceptional cases, fellowships may be renewed for a fourth year of study. Graduate students who were not awarded Revson Fellowships at the time of matriculation at Brandeis may earn appointment. All students being considered for appointment will be interviewed. Special application forms are not necessary; only the regular Graduate School application for admission and financial aid need be filed.

Teaching Assistantships

Teaching assistants are resident students in the Graduate School who do part-time teaching as part of their training and are paid a stipend in return for services rendered. The University has established teaching assistantships to enable distinguished graduate students to gain teaching experience while continuing their studies. Stipends, which vary with the hours of teaching and degree of responsibility, may reach a maximum of \$2,750. Teaching assistants are eligible for other awards, including scholarships and fellowships.

A full-time student who is a teaching assistant receives residence credit for, and is charged tuition for, that fraction of his program spent as a student in fulfillment of degree and residence requirements. No teaching assistant may carry more than a one-half time teaching assignment. A one-quarter time teaching assignment consists of about six hours of laboratory supervision per week or three hours of classroom instruction per week, or the equivalent. A graduate student who has not completed his residence requirement and is assigned to a one-quarter time teaching assignment must register for at least a three-quarter program of study for credit in order to be considered a full-time student. A student who has not completed his residence requirement and is assigned less than a one-quarter time teaching assignment must register for a full-time program of study to be considered a full-time student. A one-half time teaching assignment requires that the student who has not completed his residence requirement must register for a one-half time program of study for credit in order to be considered a full-time student. Ordinarily, only graduate students who have completed their residence requirement will be considered eligible for one-half time teaching assignments. A student who needs to register for only a partial program of study to complete his residence requirement and who is assigned a teaching assistantship is regarded as a full-time student. A teaching assistant who has completed his residence requirement may register as a full-time student and may pursue whatever program of study and research seems necessary and desirable, subject to the signed approval of his department chairman, without payment of tuition fees.

First-year graduate students are eligible for appointment as teaching assistants in the sciences. In other areas, however, first-year students are rarely appointed. Foreign students are not normally eligible for appointment as teaching assistants in their first year of graduate work unless they have had training at another American university.

Teaching assistantship appointments are made by the President of the University on the recommendation of the Dean of the Graduate School who, in turn, acts on the recommendation of a student's department chair-

man. A graduate student who is interested in an appointment as a teaching assistant should write or see his chairman. Appointments are made for periods of one year or one semester, but are renewable. All awards of teaching assistantships to incoming students are conditioned on an interview with a University representative, prior to registration. The University reserves the right to terminate any appointment at any time for due cause. Conduct, character or academic standing that is regarded as undesirable may constitute cause, but the University need not assign any reason for the termination of an appointment at any time. All teaching assistantship appointments are made and accepted with this understanding, and neither the University nor any of its Trustees or officers shall be under any liability whatsoever for the summary termination of a teaching assistantship.

In the case of a student receiving financial aid from Brandeis University, whether in the form of a teaching assistantship, scholarship or fellowship, the approval of the Dean of the Graduate School is required, in addition to the approval of the department chairman, before the student may engage in outside employment. Approval is not normally granted in the case of full-time students receiving financial aid from the University.

Research Assistantships

Research assistantships, which sometimes carry stipends in excess of \$4,000, are available in the science areas, though first-year graduate students are not normally eligible for appointment. Application should be made to the chairman of the Department or Committee administering the graduate program.

Loan Funds

Applications for University loans may be made to the Office of University Finance, with the prior approval of the Dean of the Graduate School.

Brandeis University participates in the National Defense Education Act Student Loan Fund. Application for N.D.E.A. loans are made in the same manner as University loans.

Resident Counsellorships

Resident counsellorships, providing room, board and remission of tuition are available to both men and women. Interested applicants should apply to the Office of the Dean of Students, Gryzmish Academic Center, no later than the first business day in March. Appointments are made by the Dean of Students on the recommendation of the Dean of the Graduate School.

Employment

On occasion the University offers part-time employment to specially trained persons. Inquiries should be addressed to the Student Placement Office, Gryzmish Academic Center.

Areas of Study and Courses

All courses meet for three hours a week unless the course description indicates otherwise. The presence of "a" in the course number indicates a half course given in the Fall Term; "b" indicates a half course given in the Spring Term; "aR" indicates a course given in the Spring Term, "bR," courses given in the Fall Term which is identical with "a" or "b" courses of the same number given in the Fall and Spring Terms respectively; the use of "c" after a course number indicates that the course is given as a half course but meets throughout the year.

Half courses normally carry three credits and full courses six. Exceptions are noted under the individual course descriptions. Additional credits are given for laboratory hours, as indicated in the course descriptions.

The University reserves the right to make any necessary changes in the offerings without prior notice.

Anthropology

Objectives

The graduate program in anthropology is designed primarily to train students at the doctoral level. The objective is to provide the student with a broad understanding of the four major fields of anthropology, with particular stress on ethnology and social anthropology, and to prepare the student for independent research and scholarship. Accordingly, there is a strong emphasis on training in comparative work and fieldwork, which are integral parts of the doctoral program.

Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area of study. Students need not have an undergraduate major in anthropology or sociology-anthropology. If admitted, however, the student without previous training in anthropology may be required to take additional courses, as determined by the department, to complete his residence requirements. Students should have a reading knowledge of one foreign language.

Faculty

Professor ROBERT A. MANNERS, *Chairman*: East Africa. The Caribbean. Southwestern United States.

Professor PHILIP MAYER: Africa. Urban anthropology.

Assistant Professor GEORGE L. COWGILL: Prehistoric archeology. Civilization of Middle America.

Assistant Professor DAVID KAPLAN: Mexico. Economics. Evolution.

Assistant Professor BENSON SALER: Middle America. Cultures and philosophy.

Assistant Professor ARNOLD STRICKON: Caribbean. South America. Folk communities.

Assistant Professor ALEX WEINGROD: Israel. Community development.

MR. KARL REISMAN: Linguistics. Caribbean.

Degree Requirements

Master of Arts

Students are required to complete a minimum of twenty-four course credits, and to demonstrate proficiency in one foreign language. Proficiency must be demonstrated during the first year of residence. All students will take a general qualifying examination, which will cover physical anthropology, archeology, linguistics, ethnology, social anthropology, theory, and statistics. The M.A. degree will be awarded on satisfactory completion of all these requirements. It is expected that students will normally complete these requirements in one year. Students will be required to take for credit or audit Anthropology 202 for at least two semesters; the choice of credit or audit and of timing is made by the Department.

Doctor of Philosophy

Admission to the Program. Students who complete the M.A. requirements at Brandeis at a high level will be admitted to the Ph.D. program. Students with an M.A. in anthropology from other institutions, or with a minimum of a full academic year of graduate course work in anthropology from other institutions, may come to Brandeis as prospective candidates for the Ph.D. degree. After a minimum of one semester's work, the Department may, at its discretion, grant the student transfer credit of up to one year toward the Ph.D. residence requirements. In most instances, transfer students will be required to pass the departmental general qualifying examination described for the Master's program, but at the discretion of the Department this requirement may be waived.

Program of Study. Ph.D. candidates must complete two years of residence at Brandeis, and a minimum of forty-eight hours of credits. Work toward the M.A. at Brandeis may be counted as a part of residence, as may work done elsewhere, as stipulated above and in the general rules of the Graduate School. At least thirty-six course credits must be in anthropology. Students will be required to take for credit or audit Anthropology 202 for at least two semesters, the choice of credit or audit, timing, and number of semesters is made by the Department.

Language Requirements. A reading knowledge of two acceptable foreign languages is required of all Ph.D. candidates. Proficiency in at least one of these languages must be demonstrated in the first year of residence. At its discretion the Department may require proficiency in two languages prior to beginning dissertation research.

Summer Training Program. Students are required to participate in a summer field training program under the direction of a faculty member. Students will not be admitted to the summer program until they have been in residence for one academic year, and either have an M.A. or have passed the general qualifying examination. The materials from the field trip will be submitted as a written report satisfactory to the Department. This training program may be waived, at the discretion of the Department, if there is evidence of satisfactory field training prior to the student's coming to Brandeis.

Admission to Candidacy. A student is admitted to candidacy on satisfactory completion of the following: the general qualifying examination (where required); the summer field training session; the written report on the summer fieldwork; an examination in at least one foreign language; forty-eight hours of course credits; and a predoctoral examination which may cover any aspects of anthropology and will test the scope of the student's knowledge and his ability to integrate that knowledge.

Field Work for the Dissertation. As soon as possible after qualifying for candidacy for the Ph.D., the candidate will be expected to begin a full year of field research, which will ordinarily form the basis of his dissertation.

Dissertation and Defense. The degree of Ph.D. will be awarded only after successful defense of the dissertation.

Courses of Instruction

ANTHROPOLOGY 101b. Peoples and Cultures of the Caribbean

History, ecology, and culture of the circum-Caribbean from earliest European contact to the present.

Mr. Reisman

ANTHROPOLOGY 102a. Anthropological Linguistics

The languages of the world. Speech communities. Phonetics. Phonemics. Morphology. Grammatical terms. Syntax. Semantics. Word formation and derivation. Change of vocabulary. Borrowings. Descriptive, historical and comparative linguistics. Training in the recording and analysis of unwritten languages.

Mr. Reisman

ANTHROPOLOGY 102b. Anthropological Linguistics

Continuation of Anthropology 102a.

Prerequisite: Anthropology 102a.

Mr. Reisman

ANTHROPOLOGY 103a. Language and Culture

This course will deal with the relationships between language and other cultural phenomena, and between language and cognitive processes, and with the significance of linguistic data for cultural anthropology. *Mr. Reisman*

ANTHROPOLOGY 105a. Problems in Human Variation

An introduction to the major fields of physical anthropology; human evolution, genetics, anatomy, and modern views of race. *Mr. Cowgill*

ANTHROPOLOGY 106bR. Primitive Religion

The function, forms and content of religion in primitive society. Various theoretical approaches to the study of primitive religion. *Mr. Saler*

ANTHROPOLOGY 107a. Applied Anthropology

The role of the anthropological technician in industry and in programs of technical and social development. *Mr. Weingrod*

ANTHROPOLOGY 108b. Problems in Rural Development

A comparative study of recent directed programs on village development. Topics for analysis include national problems of rural reform, factors influencing village level change, and problems and processes of directed change. Case study material is drawn from projects in India, the Middle East, Europe and Latin America. *Mr. Weingrod*

ANTHROPOLOGY 110a. Old World Archeology

Development of prehistoric cultures of Eurasia, Africa and Oceania from Pleistocene hunting and gathering cultures to the emergence of Bronze Age civilization. *Mr. Cowgill*

***ANTHROPOLOGY 111b. New World Archeology**

A survey of prehistoric and early historic native cultures of North, Middle and South America. The content and development of these cultures will be presented both in time-space perspective and from the point of view of their relevance for culture theory.

***ANTHROPOLOGY 114a. Origins of Early Civilizations of the World**

The development of the earliest food-producing communities and the rise of the earliest civilizations of the Old and the New World, based on archeological data. The emphasis is comparative and theoretical.

***ANTHROPOLOGY 115a. Origin of the State**

A comparative study of the political institutions of selected pre-state societies and primitive states.

***ANTHROPOLOGY 115b. Origin of the State**

A discussion of the origins and forms of the political organization of early irrigation civilizations and of selected theories of the origin of the state.

Anthropology 115a is not a prerequisite.

ANTHROPOLOGY 116a. Study of Primitive Economies

Economic institutions of non-industrial societies. *Mr. Kaplan*

***ANTHROPOLOGY 117b. Peasant Cultures: Past and Present**

Representative peasant cultures will be dealt with in detail, with particular

* Not to be given in 1963-64.

emphasis on the interrelationship between the pre-industrial city, the rural peasant community, and the agrarian state.

***ANTHROPOLOGY 118a. Civilizations of Middle America**

Development of Prehispanic cultures of Middle America from earliest agricultural settlements through Olmec, Teotihuacan, and Classical Maya to the emergence of the Aztec state.

ANTHROPOLOGY 119a. Modern Cultures

Research seminar. Problems and limitations of anthropological analysis of modern cultures; the community study method and its use in dealing with complex societies. Intensive study of cases from contemporary anthropological materials.

Mr. Manners

ANTHROPOLOGY 119b. Modern Cultures

Continuation of Anthropology 119a, with added use of informants from foreign areas.

Anthropology 119a is not a prerequisite.

Mr. Manners

ANTHROPOLOGY 120b. Modern Cultures of Middle America

Contemporary Indian and Ladino societies.

Mr. Saler

ANTHROPOLOGY 121b. Civilizations of South America

Development of Prehispanic cultures of the Central Andes from the first agricultural settlements through pre-Inca civilizations to the emergence of the Inca empire.

Mr. Cowgill

ANTHROPOLOGY 123a. The Cultures of Native South America

A survey of the aboriginal cultures of South America. Representative cultures will be used in the elucidation of comparative and historical problems. Contemporary conditions of the aborigines will be discussed.

Mr. Strickon

***ANTHROPOLOGY 124a. Folk and Peasant Cultures of Post-Conquest South America**

The course will concentrate on rural communities of peasants, farmers, and rural wage-earners in colonial and modern South America. Communities will be analyzed from the point of view of internal organization and relations to the nations of which they are a part.

***ANTHROPOLOGY 125b. Peoples and Cultures of India**

An examination of the institutions of representative Indian peoples and their relationship to the wider Indian society.

***ANTHROPOLOGY 130b. Cultural Evolution**

This course will deal both with the general evolution of culture and its technological bases and with the adaptations of cultures to particular natural and cultural environments.

ANTHROPOLOGY 152a. Culture and Personality

Universal, socio-cultural and idiosyncratic determinants of personality formation. Cultural values and behavioral regularities in homogeneous and heterogeneous societies. Evaluation of current theory and methodology.

Mr. Saler

* Not to be given in 1963-64.

ANTHROPOLOGY 155b. Method and Theory in Social Anthropology

The development of anthropological theory, major present-day trends and their relation to problems of research. *Mr. Kaplan*

ANTHROPOLOGY 160b. Seminar on World View*Mr. Saler***ANTHROPOLOGY 170b. Seminar on Urban Africa***Mr. Mayer****ANTHROPOLOGY 180b. Habitat, Economy and Society: Seminar**

A research seminar which will deal with the impact of technological and environmental factors on social organization. Each year a problem will be selected for analysis.

ANTHROPOLOGY 182b. Research Procedures in Anthropology

An introduction to the use of statistics and related techniques in anthropological research. *Mr. Cowgill*

***ANTHROPOLOGY 185b. Seminar on Oceania**

A research seminar which will deal with problems and topics of current anthropological interest in Oceania.

ANTHROPOLOGY 202a and b. Graduate Seminar in Anthropology

Consideration of selected field studies.

Required of all graduate students.

*Messrs. Reisman and Strickon***ANTHROPOLOGY 270-292. Readings and Research in Anthropology**

May be taken for one or two semesters.

Staff

270. Readings and Research in Archeology

271. Readings and Research in Linguistics

272. Readings and Research in Physical Anthropology

273. Readings and Research in Social Anthropology

274. Advanced Readings in Method and Theory

275. Guided Comparative and Historical Research

285. Readings and Research in African Cultures

286. Readings and Research in Asian Cultures

287. Readings and Research in North American Indian Cultures

288. Readings and Research in South American Indian Cultures

289. Readings and Research in Cultures of Oceania

290. Readings and Research in Cultures of the Caribbean

291. Readings and Research on Ibero-America

292. Readings and Research on European Communities

ANTHROPOLOGY 299. Anthropological Colloquium*Staff***ANTHROPOLOGY 400. Dissertation Research***Staff*

* Not to be given in 1963-64.

Biochemistry

Objectives

The graduate program in biochemistry leading to the degree of Doctor of Philosophy is designed to equip the student with a broad understanding of the chemistry involved in biological processes and to train him to carry out independent original research. Although the student will be primarily responsible for a comprehensive understanding of biochemical phenomena, he will be encouraged to acquaint himself with the disciplines of biology and chemistry. Research and experimental projects rather than formal course training will be emphasized. The student will, however, be required to register for basic biochemistry, biochemical techniques, intermediary metabolism, and biochemistry seminars. The choice of advanced biochemistry courses and those of other scientific disciplines (i.e., organic chemistry, genetics, embryology, etc.) are subject to the student's particular interests. The choice of research programs should be in areas under investigation by the faculty; some of these fields include intermediary metabolism in normal and also tumor tissues, enzymology, immunochemistry, radiobiology, biochemical genetics, protein chemistry, plant and virus metabolism, problems in growth and differentiation, photobiology, microbial metabolism, and organic biochemistry.

Admission

The general requirements for admission to the Graduate School, given in an earlier section of the catalog, apply to candidates for admission to this area of study. Applicants for admission to the Biochemistry Department are also required to take the Graduate Record Examination. The student's undergraduate curriculum should include some fundamental courses in biology and chemistry which will be subject to final staff approval.

Faculty

Professor NATHAN O. KAPLAN, *Chairman*: Intermediate metabolism. Biochemical basis of chemotherapy. Anti-enzyme action. Molecular heterogeneity of enzymes. Changes in structure of enzymes during adaptation, differentiation, mutation, and development.

Adjunct Professor ABRAHAM GOLDIN: Cancer chemotherapy. Synergistic action of drugs. Biochemical effects of transplantable tumors.

Adjunct Professor WILLIAM F. LOOMIS: Biochemistry of differentiation and growth with special reference to primitive animal systems. Role of $p\text{CO}_2$ in biological systems. Relationship of hydra to single cell systems grown in tissue culture.

Professor WILLIAM P. JENCKS: Conversions of chemical to mechanical energy. Mode systems for energy transfer reactions. Involvement of energy-rich phosphate compounds in muscle metabolism.

Professor LAWRENCE LEVINE: Immunochemistry. Action of complement and properdin. Immunological studies of protein structure. Protein replication on viruses. Antibody synthesis *in vitro*.

Associate Professor GERALD D. FASMAN: Protein models. Synthesis, conformational studies and biological properties of polyamino-acids.

*Associate Professor LAWRENCE GROSSMAN: Nucleic acid metabolism in normal, tumor and virus-infected cells. Problems in biochemical replication. Action of pyrimidine analogs in chemotherapy.

Associate Professor MARY ELLEN JONES: Biosynthetic mechanisms. Role of carbamyl phosphate in microbial and mammalian systems. Metabolic pathways in differentiation.

Associate Professor GORDON H. SATO: Nutrition, culture and metabolism of single mammalian cells. Virology and genetics of animal cells.

Associate Professor HELEN VAN VUNAKIS: Protein structure of enzymes and viruses. Mechanisms of viral infectivity. Action of colichines. Mechanism of blood coagulation.

Assistant Professor THOMAS C. HOLLOCHER, JR.: Free radicals in biological systems. Study of model free radical systems related to enzyme reactions. Biological oxidation. Nuclear magnetic resonance.

Assistant Professor JOHN M. LOWENSTEIN: The pathway of hydrogen in biosynthesis. The control and interaction of metabolic pathways. The mechanisms of free energy transfer.

Assistant Professor RICHARD S. MORGAN: Relation of spatial (secondary) structure of biological macromolecules (especially nucleic acids) to their function. The spatial structure studies using X-ray diffraction and infra-red spectroscopy. Isolation of active ribonucleic acid fractions from cells engaged in protein synthesis with the aim of correlating structural features of these ribonucleic acids with their role in protein synthesis.

Assistant Professor WILLIAM T. MURAKAMI: Biochemistry of virus infection. Metabolism of virus-infected cells. Purification and characterization of animal viruses.

Assistant Professor MORRIS SOODAK: Aspects of the metabolism of the thyroid gland. Mechanism of iodination and the mode of action of the goitrogenic drugs are being investigated in cell-free preparations of thyroid tissues.

* On leave Spring Term, 1963-64.

Degree Requirements

Doctor of Philosophy

Program of Study. Each doctoral candidate must satisfactorily complete the following fundamental courses: basic biochemistry, biochemical techniques, intermediary metabolism, physical biochemistry and radiobiology, biochemical research problems, and at least five of the biochemistry seminars.

Language Requirements. A reading knowledge of French and German is required. One of the language requirements must be satisfactorily completed prior to the oral qualifying examination. The second language requirement must be satisfactorily completed no later than six months following the qualifying examination.

Qualifying Examination. An oral qualifying examination will usually come at the end of the second year, and will test the student's capacity for absorbing the information to which he has been exposed in his first two years as a graduate student. The student will be held responsible for acquiring a comprehensive knowledge of biochemistry and related subjects.

Admission to Candidacy. The qualifying examination must be passed at a level satisfactory for this degree. Admission to candidacy usually takes place at the end of the second year of study.

Dissertation and Defense. A dissertation will be required which summarizes the results of an original investigation of an approved subject and demonstrates the competence of the candidate in independent research. A final oral examination based on the dissertation will be held.

Courses of Instruction

BIOCHEMISTRY 100a. Basic Biochemistry

A chemical discussion of biological problems including: the physical and organic basis of biochemical reactions; cell physiology; enzyme mechanisms; kinetics and thermodynamics; hormones, vitamins and nutrition.

Prerequisite: Chemistry 32. Some background in elementary physical chemistry is recommended but is not required.

Miss Jones and Staff

BIOCHEMISTRY 101b. Intermediary Metabolism

Metabolism of carbohydrates, lipids, amino acids, nucleic acids, vitamins, coenzymes and inorganic substances. Oxidative phosphorylation and synthesis of macromolecules such as glycogen, protein, and ribo- and deoxyribonucleic acids.

Prerequisite: Biochemistry 100a and consent of instructor.

Mr. Kaplan and Staff

BIOCHEMISTRY 200a and b. Biochemistry Techniques

Students registered for this course will participate for a period of approximately one month in several research programs being conducted by the staff members.

Prerequisite: Biochemistry 100a (may be taken concurrently) and consent of the department.

Miss Van Vunakis, Mr. Lowenstein and Staff

BIOCHEMISTRY 201. Physical Biochemistry and Radiobiology

Kinetics of enzyme reactions; measurement of free energy, heat and entropy values in biological systems; transition state theory; elements of data analysis; problems in physical techniques; isotope techniques and radiation effects.

Prerequisite: Biochemistry 100a (may be taken concurrently).

Mr. Hollocher and Staff

***BIOCHEMISTRY 202b. Chemistry of Enzyme-Catalyzed Reactions**

A discussion of the chemistry of certain enzyme-catalyzed reactions compared to the corresponding uncatalyzed or chemically catalyzed reactions. Some consideration of the mechanisms through which enzymes may exert their catalytic effects.

Prerequisites: Chemistry 131 and Biochemistry 100a, or equivalent, taken previously or concurrently.

***BIOCHEMISTRY 203a. Immunochemistry**

Mode and mechanism of antigen-antibody interaction; application of immunochemical methods to the estimation and characterization of proteins, polysaccharides, nucleic acids and natural proteins with biological activity such as enzymes and hormones.

Prerequisite: Biochemistry 100a (may be taken concurrently).

BIOCHEMISTRY 204b. Metabolism in Relation to Function

This course is to introduce the student to physiology. Circulation, digestion, excretion, excitation and homeostatic control mechanisms will be discussed. Where possible, physiological function will be related to cellular metabolism.

Prerequisite: Biochemistry 100a.

Miss Leeman and Staff

***BIOCHEMISTRY 205a. Biochemical Genetics**

Recent advances in the chemistry of inheritance will be discussed with emphasis on recombination, transformation and transduction phenomena in microorganisms. The problem of gene function, and enzyme formation and function, will be considered together with the contribution of microbial and animal mutants to the study of metabolic pathways.

Prerequisite: Biochemistry 100a (may be taken concurrently).

***BIOCHEMISTRY 206a. The Nucleic Acids**

Chemical and physical properties of the nucleic acids and monomeric units will be examined. Current chemical and enzymatic polymerization pathways and the biochemical roles of nucleic acids in protein synthesis, virus replication and genetic coding will be discussed.

Prerequisite: Biochemistry 100a, 101a and b.

***BIOCHEMISTRY 207a. The Biochemistry of Malignancy**

A discussion of the metabolic activities of malignant tissues including the leukemias will be considered in comparison with normal tissues. Discrepancies occurring in glycolysis and respiration in tumor tissues, differences in protein structure, and the origins of malignancy will be covered.

Prerequisite: Biochemistry 100a (may be taken concurrently).

* Not to be given in 1963-64.

***BIOCHEMISTRY 208b. Comparative Biochemistry**

Differences in metabolites, metabolic intermediates, enzymes and cofactors in the various species of plants and animals will be presented. Particular attention will be given to the genesis of the more important biosynthetic and metabolic process in the evolutionary scale. Phylogenetic variations will be related, where possible, to the environmental requirements of the organism.

Prerequisite: Biochemistry 100a.

***BIOCHEMISTRY 209b. Physiology of the Mammalian Cell**

Factors influencing the growth, multiplication and metabolism of animal cells grown from single cell isolations will be presented. Genetic aspects of these cells will be discussed. Studies will be summarized on the infection of these cells by animal viruses from both genetic and biochemical viewpoints.

Prerequisite: Biochemistry 100a.

BIOCHEMISTRY 210a. Protein Chemistry

The following will be discussed: chemical and physical properties of proteins, peptides, and amino acids; methods of determination of molecular weight, purity, and structure and isolation techniques.

Prerequisite: Biochemistry 100a and one year of physical chemistry.

Mr. Fasman and Miss Van Vunakis

***BIOCHEMISTRY 211b. Chemical Embryology**

A discussion of the metabolic dynamics concerned during the embryological development of animal cells with particular reference to the relation of fine structure to protein alterations and enzyme activity.

Prerequisite: Biochemistry 100a.

***BIOCHEMISTRY 212a. Neurochemistry**

The special chemistry and biochemistry of nervous tissue, both central and peripheral, will be discussed. Carbohydrate, lipid, protein, and nucleic acid metabolism of nervous tissue; nerve conduction; vision; the effects of neurotopic agents on the enzymatic mechanisms of the brain will be presented.

Prerequisite: Biochemistry 100a (may be taken concurrently).

***BIOCHEMISTRY 214b. Biochemistry of Viruses**

The course will deal with animal, plant, insect and bacterial viruses with emphasis on biochemical mechanisms of virus DNA replication and protein synthesis. Physical, chemical, immunochemical and genetic characterization of viruses and virus components will be discussed, as will the biochemistry of the mammalian tissue cells that support the growth of animal viruses.

Prerequisite: Biochemistry 100a (may be taken concurrently).

Seminars

One seminar will be given each semester. Reports and conferences on various aspects of the following topics:

BIOCHEMISTRY 215b. Structure and Functional Specificity of Macromolecules**BIOCHEMISTRY 216b. Biochemical Aspects of Differentiation and Growth**

* Not to be given in 1963-64.

*BIOCHEMISTRY 217a. Factors Regulating Metabolic Activity

BIOCHEMISTRY 218a. Biochemical Studies with Mammalian Viruses and Cultured Cells

Messrs. Murakami and Sato

BIOCHEMISTRY 219b. Selected Topics on Enzyme Action

Mr. Jencks

*BIOCHEMISTRY 220a. Biochemical Basis of Chemotherapy

BIOCHEMISTRY 221b. Biochemical Processes Involving Hemes

Mr. Hollacher

*BIOCHEMISTRY 222b. Biochemical Aspects of Psychological Phenomena

*BIOCHEMISTRY 223a. Structure, Metabolism, and Function of Hormones

Biochemistry 100a is a prerequisite for any one of these courses.

BIOCHEMISTRY 224a. Immunochemistry

Mr. Levine

BIOCHEMISTRY 400. Biochemical Research Problems

Independent research for the Ph.D. degree.

Staff

Journal and Research Clubs

In addition to the formal courses announced above, all graduate students will be encouraged to participate in the department's Journal and Research clubs. The Journal Club is an informal meeting of the students, staff and post-doctorals, where recent publications are discussed. The Research Club is a general meeting of the department in which both speakers from the department and guest speakers will present their current investigations.

Biology

Objectives

The graduate program in biology is designed to give the student an understanding of the fundamental nature of living processes, and to train him to undertake original research.

The program is planned primarily to train students at the doctoral level. At the discretion of the faculty, students who are not candidates for the Ph.D. degree may be granted a Master of Arts degree on completion of a part of the required program.

Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area of study. The student's undergraduate record should ordinarily include

* Not to be given in 1963-64.

courses equivalent to those required of undergraduates concentrating in biology at this institution. Students who are deficient in some of these subjects, but whose records are otherwise superior, may make up their deficiencies in Graduate School. In exceptional cases, students may be excused from some of these requirements. Students with serious deficiencies must, however, expect to be required to spend extra time in Graduate School.

It is strongly recommended that applicants take the Graduate Record Examination.

On being admitted to the Biology Department, each graduate student will report to the temporary graduate student adviser who will assist the student with his formal entry into the department and later with his program.

An important part of graduate training consists of laboratory experience. Since the summer months provide an opportunity for such work, unbroken by courses and other responsibilities, it is customary for graduate students to spend their summers doing research. In recognition of this, the Biology Department provides summer stipends for its full-time graduate students.

Faculty

Professor EDGAR ZWILLING, *Chairman*: Experimental embryology. Tissue interactions.

*Professor HERMAN T. EPSTEIN: Radiation biology. Virus genetics.

Professor ALBERT KELNER: Genetics. Microbial genetics. Radiation biology.

*Professor HAROLD P. KLEIN: Microbiology. Lipid synthesis. Formation of inducible enzymes.

Professor MAURICE SUSSMAN: Microbiology. Cellular differentiation. Microbial genetics.

Associate Professor JEROME A. SCHIFF: Plant biochemistry and physiology. Intracellular development. Sulphur metabolism.

Assistant Professor CHANDLER FULTON: Invertebrate development. Cellular differentiation.

Assistant Professor ATTILA O. KLEIN: Plant physiology and metabolism.

Assistant Professor ELIZABETH C. MACLEAN: Electron microscopy of macromolecules and particulate structures.

Assistant Professor GJERDING OLSEN: Animal physiology. Endocrinology.

Assistant Professor MIRIAM F. SCHURIN: Biochemical cytology. Cytogenetics.

Assistant Professor MORRIS SOODAK: Biochemistry. Endocrinology.

Assistant Professor PHILIP A. ST. JOHN: Invertebrate physiology. Regeneration in invertebrates.

* On leave, 1963-64.

Degree Requirements

Master of Arts

Program of Study. The program leading to the M.A. degree in biology focuses primarily on the research capability of the student. Specifically, the primary requirement for the degree is the completion of a thesis based on original laboratory work which is acceptable to the department. In general, the preparation for an original research problem will necessitate the enrollment of a student in course work. The specific number and types of courses will vary, depending on the ultimate research problem, and will be prescribed by the department. The candidate must, however, complete the equivalent of one full year of graduate study at Brandeis University, ordinarily computed at a minimum of twenty-four semester hours of approved study.

By the end of the first year, each graduate student will choose a specific field of interest and will apply to the chairman of the department for a permanent adviser to be assigned by the department. This adviser will serve as the chairman of a committee of at least three departmental staff members, which will advise the student on courses to be taken and guide him throughout the thesis problem.

Language requirements. All candidates are required to demonstrate a reading knowledge of French or German, or another foreign language acceptable to the department. An examination demonstrating reading ability in the foreign language must be taken prior to the completion of thesis work.

Qualifying Examination. At the discretion of the student's advisory committee, a qualifying or comprehensive examination may be required.

Doctor of Philosophy

Program of Study. All students will be expected to obtain a knowledge of the principles and techniques of the areas of genetics, morphology, physiology and development before taking the qualifying examination. The background a student is expected to have in these areas is equivalent to the course contents of Biology 101a, 101b, 102a, 103b, 104b, and Biochemistry 100a, 102b. The student will be expected also to have additional background in his area of specialization as well as experience in seminar and research courses to be designated.

Each student will choose his specific field of interest and will apply to the chairman of the department for a permanent adviser to be assigned by the department before the end of the second year. The adviser will assist the student in planning a well-balanced program in his specific field of interest. In addition, the adviser will ordinarily serve as the chairman of

the student's proposition committee, proposition examining committee and dissertation examining committee.

Language requirement. A reading knowledge of French and German is required. At least one of these requirements must be met before the student is admitted to candidacy.

Qualifying Examination. Ordinarily this examination will be taken on the recommendation of the student's adviser and should be completed before active dissertation work is initiated. The student's major adviser will appoint two other faculty members to serve as the student's proposition committee. The student will submit ten propositions encompassing the four core areas with no more than three propositions in any one area. Each proposition should be a proposal or hypothesis subject to debate. The proper form in which the propositions are to be submitted will be designated by the department. The student will be examined orally on four of the ten acceptable propositions by the three members of the propositions committee plus two additional faculty members.

Admission to Candidacy. To be admitted to candidacy, the student must have passed his foreign language and qualifying examinations.

Dissertation. Each student will conduct an original investigation. *It is strongly recommended that the dissertation research be deferred until the student has fulfilled requirements necessary to be admitted to candidacy.* With the approval of the student's adviser, however, research courses may be elected at any time. After admission to candidacy, a dissertation committee will be appointed by the chairman of the department to consist of at least three staff members headed by the student's permanent adviser. This committee must approve the candidate's subject of research, will guide his research activities toward the doctoral dissertation and, in addition, will read and evaluate the completed dissertation. After submission of the dissertation, the candidate will be expected to present the principal results of his work and its significance during an examination in defense of the dissertation.

Courses of Instruction

*BIOLOGY 101a. General and Comparative Physiology of Animals

After an introduction to acquaint students with current experimental findings using animal cells and tissues, the course will turn to an intensive comparison of physiological processes operating in both invertebrates and vertebrates. Particular emphasis will be placed on co-ordinating and integrating mechanisms.

Prerequisites: Chemistry 25, Biology 31b (may be taken concurrently).

Three classroom and three laboratory hours a week. 4 credits.

Laboratory fee: \$15.

* Not to be given in 1963-64.

***BIOLOGY 101b. Comparative Physiology of Plants**

A discussion of those areas of physiology and biochemistry to which plants lend themselves as experimental objects. Conspicuous examples are photosynthesis, photomorphogenesis, nitrogen fixation, and the biosynthesis of natural products such as anthocyanins, flavonoids, isoprenoids, phenols, terpenes, etc.

Prerequisites: Chemistry 25, Biology 31b (may be taken concurrently).

Three classroom hours a week. *3 credits.*

BIOLOGY 102a. Gene Structure and Function

The development of the gene concept. Contemporary investigations of the nature of genetic material and its involvement in cell structure and function.

Prerequisite: Biology 30a.

Three classroom hours. *3 credits.*

Mr. Fulton

BIOLOGY 103b. Cytology

The class will consider the functions, composition, structure and interrelations of cellular components from a biochemical and biophysical point of view. There will be a review of techniques and principles and consideration of the organization for cell division. Lectures and seminars will emphasize reading the original literature.

Prerequisites: Biology 30a, 31b; Physics 10 or 11; Chemistry 10 and 25.

Three classroom hours a week. *3 credits.*

Mrs. Schurin

BIOLOGY 104b. The Cellular Basis of Development

Phenomic variation and interaction at the cellular level will be considered. Developmental events in microbial cultures, morphogenetically complex Protista, Metazoa and Metaphyta will be analyzed in terms of the cellular mechanisms involved.

Three classroom hours. *3 credits.*

Mr. Sussman

***BIOLOGY 105b. Invertebrate Physiology**

This course will deal with a comparative study of the physiology of receptor-effector and regulatory systems in the invertebrate animals. Nervous, digestive, endocrine, muscle, osmoregulatory, respiratory and circulatory functions will be considered.

Prerequisites: Biology 21a and Chemistry 25.

Two lectures and six laboratory hours per week. *4 credits.*

Laboratory fee: \$15.

BIOLOGY 106a. Developmental Plant Biology

The physiology and biochemistry of morphogenetic events in the life cycle of higher plants. Differentiation and growth of organs examined in terms of changing metabolic patterns. Results of modern experimental approaches such as cell, tissue and organ culture and radiation studies will be evaluated.

Prerequisites: Biology 31b (may be taken concurrently), Biology 10; Chemistry 25.

Three classroom and three laboratory hours a week. *4 credits.*

Laboratory fee: \$15.

Mr. A. O. Klein

* Not to be given in 1963-64.

BIOLOGY 111a. Microbial Genetics

Fundamental principles of genetics as exemplified in experiments with micro-organisms.

Prerequisites: Genetics 30a, or its equivalent; some background in microbiology equivalent to Biology 32a is advisable, but not required.

Three classroom hours a week. *3 credits.*

Mr. Kelner

***BIOLOGY 120b. Advanced Microbiology**

Enrichment and isolation of representative bacteria. Discussion of the biology of these forms.

Prerequisites: Biology 31b, 32a; Chemistry 25.

Two classroom hours, four laboratory hours a week. *4 credits.*

Laboratory fee: \$15.

***BIOLOGY 124a. Virology**

Biology of plant, animal and bacterial viruses.

Prerequisites: Biology 32a or the equivalent.

Three classroom hours.

BIOLOGY 131a. Experimental Morphogenesis

The fundamentals of embryology as exemplified by the chick, amphibian, and selected invertebrates. The classical experiments of embryology will be re-evaluated in light of recent advances made with modern approaches.

Three classroom hours. Laboratory to be arranged. *4 credits.*

Laboratory fee: \$15.

Mr. Zwilling

***BIOLOGY 141b. Physical Biology**

Physical methods; treatment of experimental data; physical aspects of vision and hearing; introduction to radiobiology and theoretical biology; forces involved in biological events.

Prerequisite: Satisfactory grades in full year courses in biology, chemistry, mathematics, and physics.

Three classroom hours.

BIOLOGY 145b. Optical Methods in Biology

Theory of image formation and resolution; lens aberrations; phase contrast, interference, polarization, X-ray and electron microscopy; optical rotation; spectrophotometry and related techniques; review of X-ray diffraction methods.

Prerequisite: Elementary work in physics, mathematics and biology.

Two hours of lecture and one of demonstration per week. *3 credits.*

Miss Maclean

BIOLOGY 150 or 150a and b. Physical and Mathematical Bases of Molecular Biology

The application of principles of physics, physical chemistry and mathematics to problems of biological interest including thermodynamics, kinetics, photochemistry, radiochemistry, statistics and related numerical methods.

Prerequisites: Mathematics through calculus, some acquaintance with physics and physical chemistry. Students are advised to consult the instructor regarding prerequisites.

Three classroom hours each semester. *3 credits each semester.*

* Not to be given in 1963-64.

Mr. Schiff and Staff

***BIOLOGY 200b. Comparative Physiology**

The physiological and biochemical distinctions among living organisms will be presented and the origins of these differences will be discussed from the viewpoint of biochemical evolution. An attempt will be made to define basic metabolic processes common to all organisms as well as the evolution of special pathways in certain groups.

Three classroom hours.

***BIOLOGY 212a. Cytogenetics**

Correlation of genetic data with chromosomal aberration. Study of classical methods and recent findings.

Prerequisites: Biology 102a and 103b.

Three classroom hours. Laboratory to be arranged. *4 credits.*

Laboratory fee: \$10.

***BIOLOGY 214b. Experimental Methods in Microbial Genetics**

Introduction to the study of microbial variations, including spontaneous and induced mutations; recombination, transduction and other phenomena, using bacteria and bacterial viruses.

Laboratory hours to be arranged.

Laboratory fee: \$20.

***BIOLOGY 222b. Microbial Metabolism**

Nutrition and intermediary metabolism of microorganisms.

Prerequisite: Biochemistry 100a or the equivalent.

Three classroom hours.

***BIOLOGY 223b. Experimental Methods in Microbial Metabolism**

An introduction to specialized techniques as applied to the study of microbial metabolism, including manometry, chromatography, spectrophotometry, tracer techniques, etc.

Laboratory hours to be arranged.

Laboratory fee: \$20.

BIOLOGY 245a. Selected Topics in Animal Physiology

Three classroom hours a week.

Mr. Olsen

BIOLOGY 245b. Selected Topics in Animal Physiology

Three classroom hours a week.

Mr. St. John

***BIOLOGY 400. Research in Genetics and Microbiology**

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

BIOLOGY 401. Research in Genetics and Microbiology

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

Mr. Kelner

***BIOLOGY 402. Research in Microbiology and Physiology**

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

* Not to be given in 1963-64.

BIOLOGY 403. Research in Genetics and Cytology

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

Mrs. Schurin

BIOLOGY 404. Research in Physiology

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

Mr. Olsen

BIOLOGY 405. Research in Invertebrate Development

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

Mr. Fulton

BIOLOGY 406. Research in Plant Physiology

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

Mr. Schiff

BIOLOGY 407. Research in Invertebrate Physiology

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

Mr. St. John

Biology Journal Clubs

There will be a number of informal Journal Clubs which will deal with various topics of concern to the various specialties. These will meet regularly under the auspices of staff members. Students, depending upon their individual needs, may be required to attend.

Biophysics

Objectives

The interdepartmental graduate program in biophysics, leading to the degree of Doctor of Philosophy, is designed to give the student a broad understanding of the physico-chemical nature of living processes and to train him to carry out independent research. In addition to basic courses in cellular biology, the student will be expected to obtain a broad background in the supporting disciplines of biochemistry, biology, chemistry, physics, and mathematics. After completion of this program, the student's remaining course work will be in an area of biophysics in which a faculty member is doing research. Some areas in which research is now being actively pursued are photobiology, radiobiology, virus reproduction and muscle contraction.

Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to applicants for admission to this area of study. Applicants are also required to take the Graduate Record

Examination. The student's undergraduate program should, ideally, include organic and physical chemistry, atomic and nuclear physics, differential equations, and courses in cellular biology. Inasmuch as most students will be deficient in some respects, it is expected that deficiencies may be made up by taking the appropriate courses while in Graduate School. If a petition is approved, the successful completion of some of these courses may be credited as part of the graduate program. On being admitted to study in biophysics, the student will be assigned to a member of the Biophysics Committee, who will advise the student on a program of courses. This program should be submitted for approval to the committee by the beginning of the second term of residence.

Faculty

Professor HERMAN T. EPSTEIN* (Biophysics), *Chairman*; Professors NATHAN O. KAPLAN (Biochemistry), ALBERT KELNER (Biology), HENRY LINSCHITZ (Chemistry), EDGAR LIPWORTH (Physics); Assistant Professors THOMAS C. HOLLOCHER, JR. (Biochemistry), KENNETH KUSTIN (Chemistry), RICHARD S. MORGAN (Biochemistry).

Degree Requirements

Doctor of Philosophy

Program of Study. The following are five areas in which competency at more than a minimal level is expected of a candidate for a Ph.D. in Biophysics:

1. Biology—competency to include at least one area of biology in which the candidate could be presumed to be capable of doing independent work.
2. Modern physics through the basic ideas of quantum mechanics.
3. Physical chemistry including thermodynamics.
4. Biochemistry.
5. Mathematics through elementary differential equations.

Language Requirements. A reading knowledge of German and French is required. Russian may be substituted for one of these languages if the advisory committee determines that it is useful for a student in his particular field of research.

Qualifying Examination. A student should have completed the program of study not later than the end of his second year in residence so that he may be able to take a qualifying examination covering this material.

Dissertation and Defense. Upon passing this examination, the student will select a dissertation supervisor and formally initiate research and course study in the research area of his supervisor. An additional twelve credits are

* On leave, 1963-64.

to be taken from among the courses listed above or from other graduate courses and seminars as approved by the student's advisory committee. This committee will be appointed by the dissertation supervisor, subject to the approval of the Biophysics Committee. When the student and the dissertation supervisor have agreed on the research project, a brief description of the project must be filed with each of the members of the advisory committee.

After completing the research and the dissertation, the candidate will present and discuss the results and significance of his work during an examination in defense of his dissertation.

Courses of Instruction

BIOPHYSICS 300a and b. Biophysical Techniques

All entering students normally register for this course and will thereby participate for periods of about six weeks in the research programs of each of the six to eight staff members.

Staff

Chemistry

Objectives

The graduate program in chemistry is designed to lead to a broad understanding of this subject. All students will be required to demonstrate knowledge in advanced modern areas of inorganic, organic and physical chemistry. They will be required also to demonstrate proficiency in selected experimental techniques which are used in chemical research. Advanced courses are offered, satisfactory completion of which will constitute partial fulfillment of these requirements. Members of the chemistry staff are currently investigating mechanisms of organic reactions, chemistry of free radicals, stereochemistry and molecular geometry, chemistry of organophosphorous compounds, chemotherapy, mechanisms of enzyme reactions, structure and biogenesis of natural products, chemical kinetics of elementary reactions, statistical theory of atomic and molecular structure, properties of non-aqueous solutions, photochemistry, mechanisms of photosynthesis, solid state chemistry, electron paramagnetic resonance, rapid reactions by relaxation spectrometry, structure of organic and inorganic compounds by X-ray diffraction, kinetics of reactions in the gas phase.

To avoid excessive specialization, related advanced work in mathematics, physics, and biology may be offered to fulfill degree requirements.

Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this

area of study. In addition, the undergraduate curriculum of applicants should include courses in physics and mathematics (differential and integral calculus), and courses in general, analytical, organic and physical chemistry.

Admission to advanced courses will be based upon results of a qualifying examination in each of these areas of chemistry, which will be taken upon entrance. These examinations will determine whether the student will be required to make up deficiencies in preparation. The qualifying examinations will be given twice a year; (1) during the two-week period ending with the first week of the Fall Term and (2) during the third week in February. The results of the qualifying examinations will be considered in the assignment of awards for the subsequent years of graduate study.

Faculty

Professor SAUL G. COHEN, *Chairman*: Chemistry of free radicals; organic photochemistry; stereospecificity and mechanism of reactions of enzymes.

Professor ORRIE M. FRIEDMAN: Biorganic chemistry; degradation studies of DNA; organic phosphorus compounds; synthesis of anti-tumor agents.

Professor SIDNEY GOLDEN: Quantum statistical theory of chemical kinetics; many body problems and atomic and molecular structure.

Professor HENRY LINSCHITZ: Reactions of excited molecules; stabilization of free radicals; photo-ionization in solution and properties of solvated electrons; physical mechanisms of photosynthesis and vision.

Associate Professor PAUL B. DORAIN: Electron paramagnetic resonance studies on metastable oxidation states; exchange interactions in crystals; crystal field splittings in actinides.

Associate Professor JAMES B. HENDRICKSON: Chemistry of natural products, particularly alkaloids and sesquiterpenes; stereochemistry and molecular geometry.

Associate Professor MYRON ROSENBLUM: Reaction mechanisms; thermally induced rearrangements; the chemistry of ferrocene and related compounds.

Associate Professor ROBERT STEVENSON: Isolation and structure of natural triterpenoids; lignans; molecular rearrangements in triterpenoids and steroids.

Assistant Professor ROBERT F. HUTTON: Chemical models for enzymatic reactions. Nuclear magnetic resonance spectroscopy.

Assistant Professor KENNETH KUSTIN: Study of fast reactions in solution by relaxation techniques; mechanisms of inorganic reactions; enzyme kinetics.

Assistant Professor THOMAS N. MARGULIS: Structure of organic and inorganic compounds by X-ray diffraction.

Assistant Professor COLIN STEEL: Chemistry of excited molecules and radicals; the kinetics and mechanisms of photochemical and thermal reactions.

Assistant Professor THOMAS R. TUTTLE, JR.: Study of electron distribution in ion radicals by electron spin-resonance; study of molecular motions in solutions.

Degree Requirements

Master of Arts

Qualifying Examinations. The qualifying examinations must be passed by the end of the first year of graduate study.

Program of Study. Each candidate for the Master's degree is required to complete satisfactorily:

1. Not less than *eighteen semester hours of lecture course work* in inorganic, organic and physical chemistry. Graduate courses in related fields may be offered to fulfill the chemistry requirements on petition to the department. The petition must be approved prior to registration for such courses.

2. *Six semester hours of advanced laboratory work.* This requirement may be met by graduate credit in laboratory work in courses numbered over 100.

Residence Requirement. The minimum residence requirement for this degree is one year. While generally this will be fulfilled in two semesters and one summer, it may in certain instances be met in two semesters.

Language Requirements. A reading knowledge of German and an elementary knowledge of French or Russian is required.

Doctor of Philosophy

Program of Study. Each candidate for the Doctor's degree is required to complete satisfactorily:

1. The qualifying examinations which must be passed at a level satisfactory for this degree by the end of the first year of graduate study.

2. The program of study described for the degree of Master of Arts in Chemistry, or its equivalent.

3. Not less than nine additional semester hours of lecture course work in Chemistry selected from those in the 200 series.

4. Final examinations. After a student has been admitted to the Ph.D. program he begins to take final examinations, normally in the second year of graduate study, in his major field, organic or physical chemistry. In

organic chemistry these examinations are administered twice a year, at the end of each semester, and are based on assigned readings. Students must pass three of these examinations and must maintain satisfactory progress toward this end. In physical chemistry, generally during the third semester of graduate work, the student is assigned a set of four propositions. On one proposition a three-hour examination is written and on the remaining three propositions the student is examined orally for a two-hour period by faculty members. The student is graded on his overall performance on both parts, i.e., written and oral, of the examination.

Residence Requirements. The minimum residence requirement for this degree is two years. Ordinarily, three years of full-time study will be necessary for the completion of the course work and the preparation of an acceptable thesis.

Language Requirements. A reading knowledge of German and either French or Russian is required.

Admission to Candidacy. The student may be recommended for admission to candidacy upon the recommendation of his dissertation adviser, and the completion of the following requirements: the qualifying examinations, twenty-one hours of graduate lecture course credit, the language examinations and one final examination.

Dissertation and Defense. A thesis is required which summarizes the results of an original investigation and which demonstrates the competence of the candidate in independent investigation, critical ability, and effectiveness of expression. The topic of the thesis must receive approval of the department. An oral defense of the dissertation will be held.

Courses of Instruction

*CHEMISTRY 110b. Analytical Chemistry

Principles and techniques involved in modern chemical analysis. Application of modern instrumental methods to the study of chemical and physical processes. Techniques used include polarography, spectroscopy, chromatography.

Prerequisites: Chemistry 41, which may be taken concurrently.

Two classroom and six laboratory hours a week. 4 credits.

CHEMISTRY 121b. Inorganic Chemistry

Introduction to the principles of chemical binding; valence theory, periodic properties, molecular structures. Application to the chemistry of the lighter elements.

Inorganic synthesis and analysis; synthetic techniques include vacuum line, high temperature, non-aqueous and electrochemical preparations. Instrumental methods of analysis.

Prerequisites: Chemistry 41 or consent of the instructor.

Three classroom hours a week. 3 credits.

Mr. Kustin

* Not to be given in 1963-64.

CHEMISTRY 130a. Introduction to Organic Research

Systematic determination of structures of organic molecules utilizing micro-techniques and instrumental methods as a preparation for research. Some synthetic work in connection with degradations of unknowns will emphasize choice of reactions and conditions.

Prerequisites: Chemistry 25.

Two classroom hours and two three-hour laboratory periods a week. *4 credits.*

Laboratory fee: \$10.

Mr. Hendrickson

CHEMISTRY 131a. Advanced Organic Chemistry

Stereochemistry, molecular rearrangements, kinetics and mechanisms of organic reactions.

Prerequisites: Satisfactory grades in Chemistry 25 and 41 or the equivalent. Chemistry 41 may be taken concurrently.

Mr. Cohen

CHEMISTRY 132b. Synthetic Methods

A survey of several newer organic reactions of theoretical and synthetic interest including a discussion of their application, scope, specificity and mechanism.

Prerequisites: Satisfactory grade in Chemistry 131a or the equivalent.

Mr. Rosenblum

CHEMISTRY 141a. Advanced Physical Chemistry

A unified introduction to chemical thermodynamics, statistical mechanics and elementary wave mechanics.

Prerequisite: Chemistry 41 or equivalent.

Mr. Golden

CHEMISTRY 141b. Advanced Physical Chemistry

Continuation of Chemistry 141a.

Prerequisite: Satisfactory grade in Chemistry 141a.

Mr. Tuttle

CHEMISTRY 142b. Physical Chemistry Laboratory

Continuation of Chemistry 42a.

One classroom and five laboratory hours a week. *3 credits.*

Laboratory fee: \$10.

Staff

***CHEMISTRY 144b. Chemical Crystallography**

Introduction to chemical crystallography including descriptive crystallography; theory of symmetry; structure determination by means of X-ray, neutron and electron diffraction.

Prerequisites: Chemistry 41 or the equivalent.

CHEMISTRY 145b. Chemical Kinetics

Kinetics of homogeneous and heterogeneous chemical change.

Prerequisite: Satisfactory grade in Chemistry 41 or equivalent.

Mr. Steel

CHEMISTRY 200. Advanced Chemistry Laboratory

Staff

***CHEMISTRY 221b. Advanced Inorganic Chemistry I**

Inorganic reaction mechanisms: Substitution, exchange, polymerization, redox, hydrolytic and solvolytic reactions; inorganic stereochemistry.

Corequisite: Chemistry 145b.

* Not to be given in 1963-64.

***CHEMISTRY 222b. Advanced Inorganic Chemistry II**

Theoretical inorganic chemistry: Atomic structure and the application of group theory to inorganic compounds, particularly the transition metals; ligand field theory.

Prerequisites: Chemistry 141a;

Corequisite: Chemistry 141b.

Chemistry 221b and Chemistry 222b will be given in alternate years, starting in 1964-65.

CHEMISTRY 230b. Advanced Organic Chemistry

A continuation of Chemistry 131a.

Prerequisites: Satisfactory grade in Chemistry 131a.

Mr. Cohen

CHEMISTRY 231c. Selected Topics in Organic Chemistry

Required of graduate students in organic chemistry who must audit this course each year and may receive three credits after participating for two years and presenting two seminar talks.

Messrs. Hendrickson and Rosenblum

***CHEMISTRY 232b. Chemistry of Heterocyclic Compounds**

A systematic survey of the principal oxygen, nitrogen and sulfur heterocycles of five and six membered and fused ring systems, including their synthesis, chemical reactions and aromatic character.

Prerequisite: Satisfactory grade in Chemistry 131a.

CHEMISTRY 233b. Chemistry of Alkaloids

Study of principal alkaloids belonging to the pyrrolidine, piperidine, pyrrolizidine, quinolizidine, quinoline, isoquinoline and indole groups, including degradation, total synthesis and biogenetic relationships.

Prerequisite: Satisfactory grade in Chemistry 132b.

Mr. Hendrickson

***CHEMISTRY 235a. The Chemistry of Natural Products I**

Structure elucidation, synthesis and biogenesis of steroids and triterpenoids.

Prerequisites: Satisfactory grades in Chemistry 131a and b or the equivalent.

CHEMISTRY 236a. The Chemistry of Natural Products II

Isolation, structure elucidation, degradation, synthesis and classification of selected classes of natural products.

Prerequisites: Satisfactory grades in Chemistry 131a and b or the equivalent.

Mr. Stevenson

CHEMISTRY 241c. Selected Topics in Physical Chemistry

A seminar course.

Prerequisites: Satisfactory grades in Chemistry 141a and 121a or 145b or the equivalent.

Messrs. Kustin and Tuttle

***CHEMISTRY 243b. Statistical Thermodynamics**

Elementary statistical mechanics of systems in equilibrium; Boltzmann, Fermi-Dirac and Bose-Einstein statistics; microcanonical, canonical and grand canonical ensembles; applications to thermodynamic systems.

***CHEMISTRY 247a. Quantum Chemistry**

Quantum mechanics and applications to problems in atomic and molecular structure and chemical binding.

* Not to be given in 1963-64.

CHEMISTRY 248b. Topics in Quantum Theory

Mr. Golden

Chemistry Colloquium

Lectures by faculty and graduate students. Required of all graduate students.
Non-credit.

Courses in Research

CHEMISTRY 400. Organic Chemistry and Physical Organic Chemistry

Reaction mechanisms; free radicals; photochemistry; enzyme reactions.

Mr. Cohen

CHEMISTRY 401. Organic Chemistry

Chemistry of natural products; steroids, triterpenoids, lignans.

Mr. Stevenson

CHEMISTRY 402. Organic Chemistry

Chemistry of organo-phosphorus compounds; nucleic acids; enzymes and chemotherapeutic mechanisms.

Mr. Friedman

CHEMISTRY 403. Organic Chemistry

Non-benzenoid aromatics; thermally induced rearrangements; reaction mechanisms.

Mr. Rosenblum

CHEMISTRY 404. Organic Chemistry

Chemistry of natural products; alkaloids and sesquiterpenes; stereochemistry and molecular geometry.

Mr. Hendrickson

CHEMISTRY 405. Physical Chemistry

Chemical kinetics of elementary reactions; statistical theory of atomic and molecular structure; statistical mechanics of electrolytic solutions.

Mr. Golden

CHEMISTRY 406. Physical Chemistry

Reactions of excited molecules; luminescence; mechanism of photosynthesis; heavy-metal complexes.

Mr. Linschitz

CHEMISTRY 407. Physical and Inorganic Chemistry

Electron paramagnetic resonance; solid state chemistry.

Mr. Dorain

CHEMISTRY 408. Physical Chemistry

Electron spin resonance; structure of free radicals; diffusion in liquid solutions.

Mr. Tuttle

CHEMISTRY 409. Physical and Inorganic Chemistry

Kinetics and mechanisms of inorganic reactions; experimental study of fast reactions including enzyme catalysis.

Mr. Kustin

CHEMISTRY 410. Physical Chemistry

Structure of organic and inorganic compounds by X-ray diffraction.

Mr. Margulis

CHEMISTRY 411. Physical Chemistry

Chemistry of excited molecules and radicals; the kinetics and mechanisms of photochemical and thermal reactions.

Mr. Steel

Contemporary Jewish Studies

Objectives

The graduate program in Contemporary Jewish Studies will offer training on the Master of Arts level in various disciplines relating to the history and civilization of contemporary Jewry. It is designed for students who intend to devote themselves to teaching and scholarly research in contemporary Jewish studies as well as those who plan careers in the field of Jewish communal and educational service.

Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to the Contemporary Jewish Studies program.

Faculty Executive Committee

Associate Professor HAROLD WEISBERG, *Chairman*: Philosophy.
 Professor ALEXANDER ALTMANN: Near Eastern and Judaic Studies.
 Professor NAHUM N. GLATZER: Near Eastern and Judaic Studies.
 Professor VICTOR HARRIS: English and American Literature.
 Professor ROBERT A. MANNERS: Anthropology.
 Professor ABRAHAM H. MASLOW: Psychology.
 Professor ROBERT MORRIS: Social Planning.
 Professor MORRIS S. SCHWARTZ: Sociology.
 Associate Professor ARNOLD GURIN: Social Administration.
 Associate Professor BENJAMIN HALPERN: Near Eastern and Judaic Studies.
 Associate Professor MARIE SYRKIN: English.
 Assistant Professor BERNARD S. SOBEL: Sociology.
 MR. LEONARD ZION: Lecturer in Near Eastern and Judaic Studies. Secretary of the Committee

Degree Requirements

Master of Arts

Program of Study. The program of study leading to the degree of Master of Arts will consist of six half-courses (three each term), and one Master's paper each term in lieu of a thesis. The six half-courses must include Contemporary Jewish Studies 105b, 160a, 160b, and 170b. The remainder of the course requirements may be fulfilled within the Contemporary Jewish Studies program or, with the approval of the Committee, within the Departments of Anthropology, Near Eastern and Judaic Studies,

Psychology, Sociology, or the Florence Heller School for Advanced Studies in Social Welfare.

It is expected that the Master of Arts degree will be earned in one year; in exceptional cases two years will be allowed.

Residence Requirement. The minimum residence requirement for the Master of Arts degree is one year.

Language Requirement. The candidate must demonstrate proficiency in one foreign language, ordinarily Hebrew or Yiddish.

Courses of Instruction

CJS 103a. The Sociology of Religion

Sociological analysis of contemporary and historical religious institutions and experiences. Religious leaderships and followerships; conversion; sect, denomination and church; religion, society and politics; leading contemporary schools of theology.

Mr. Sobel

CJS 105b. The Sociology of Modern Anti-Semitism

Sociological analyses of contemporary forms of anti-Semitism. Various theories, both past and present, attempting to explain the phenomenon will be critically examined.

Mr. Sobel

CJS 115b. The Sociology of the American Churches

The major sociological and theological characteristics of the American churches; church membership and church organization; the relationship of the churches to the power structure and to each other; Catholics and Jews; the "majority" churches in a pluralistic society.

Mr. Sobel

CJS 160a. American Jewish History in the Nineteenth Century

The immigrants, their origins and integration. Development of religious institutions, associations, and community organization through the rise of political Zionism.

Mr. Halpern

CJS 160b. American Jewish History in the Twentieth Century

The impact of eastern European immigrants upon the American Jewish community. Emergence of America as a center of world Jewry in the first and second World Wars.

Mr. Halpern

CJS 166a. Modern Jewish Intellectual History to 1870

Jewish ideologies and movements from the Enlightenment to the rise of political anti-semitism.

Mr. Halpern

CJS 166b. Modern Jewish Intellectual History Since 1870

Jewish ideologies and movements from the rise of political anti-semitism to the present.

Mr. Halpern

CJS 168a. Judaism and Contemporary Social Issues

An examination of relationships of Jewish ideologies to critical problems with- in organized labor and management, work and leisure, community renewal, war and peace, church and state, public policy and individual freedom.

Mr. Zion

CJS 170b. The Contemporary American Jewish Community

Survey of Jewish organizational activity in the United States and Canada.

Structure and functions of religious and philanthropic institutions. Patterns of co-ordination and community planning. Interrelationship of local, national, and international programs. Trends and problem issues in regard to demographic changes, Jewish identification, rationale for sectarian services, inter-group relations, financing.

Mr. Gurin

English and American Literature

Objectives

The graduate program in English and American literature is designed to offer training in the interpretation and evaluation of literary texts with some attention to the related scholarly disciplines, particularly history and linguistics. It also offers for candidates who have some ability in writing an opportunity to pursue this interest as a normal part of the graduate program.

Admission

Candidates for admission should have a Bachelor's degree, preferably with a major in English and American literature, and a reading knowledge of French, Italian, German, Greek, or Latin. The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this area of study.

Faculty

Professor VICTOR HARRIS, *Chairman*: Seventeenth century literature.

Professor J. V. CUNNINGHAM: Renaissance literature. Creative writing.

*Professor OSBORNE EARLE: Old English. Milton.

Professor MILTON HINDUS: American literature. Modern literature.

Professor EDWIN BURR PETTET: Dramatic criticism.

Professor PHILIP RAHV: American literature. Criticism.

Visiting Professor HORTENSE CALISHER: Modern literature.

Visiting Professor MARY GIFFIN: Medieval literature. Chaucer.

Visiting Professor NEVILLE E. ROGERS: Romantic literature.

Associate Professor BENJAMIN B. HOOVER: Eighteenth century literature.

*Associate Professor ROBERT OTTO PREYER: Victorian literature.

Assistant Professor ROBERT E. EVANS: Linguistics. Chaucer. Creative writing.

Assistant Professor ALLEN GROSSMAN: Contemporary and American literature.

Assistant Professor IRA KONIGSBERG: Eighteenth century literature.

* On leave, 1963-64.

Assistant Professor PETER SWIGGART: American literature.

DR. JOHN BURT WIGHT: Teacher training.

MR. ALAN LEVITAN: Renaissance literature.

MR. RICHARD ONORATO: Romantic literature.

Degree Requirements

Master of Arts

Program of Study. The program of study in the first year of graduate work leading to the degree of Master of Arts will consist of six half-courses (three a semester), and one Master's paper each term (290a and b) in lieu of a thesis. The six half-courses will normally include Introduction to Literary Study; at least one seminar a semester; Old English, Middle English, or History and Structure of the English Language; and may include a half-course in advanced writing. Candidates who are deficient in training, however, will in most cases need additional course work to fulfill the requirements for the degree of Master of Arts.

Residence Requirement. The minimum residence requirement is one year, though students with inadequate preparation may require more.

Language Requirements. Each candidate must have a reading knowledge of French, Italian, German, Spanish, Greek or Latin.

Qualifying Examinations. Each candidate must pass an oral examination on a number of major texts, distributed over the various kinds and periods of English and American literature. This examination which will consist solely in the interpretation and evaluation of the texts on the reading list, will serve also as a qualifying examination for the doctorate. The examinations are normally scheduled in September and May.

If this examination is to be considered as a qualifying examination for the doctorate, the candidate will submit to the chairman two weeks in advance a list of three or four additional texts upon which he wishes to be examined.

Doctor of Philosophy

Program of Study. The program of study in the second year of graduate work leading to the degree of Doctor of Philosophy will consist of six half-courses. These will normally include three or four seminars, the English Seminar, and may include a half-course in advanced writing. The program in the third year of doctoral study will normally consist of 321a and b, 322a and b, and in most cases 311. Candidates who are deficient in training, however, may require more formal course work. Requirements for the Master of Arts in English must be completed and the examinations for this degree must be passed at a high level.

Language Requirements. Each candidate must have a reading knowledge of two of the following languages: Greek, Latin, French, Italian, German, Spanish.

Residence Requirement. The minimum residence requirement is one year beyond the Master's degree or two years beyond the Bachelor's, but candidates will normally take three or four years.

Qualifying Examinations. Each candidate must pass the Master's oral examination at a high level. In addition, he must pass examinations in four fields of English and American literature (321a and b, and 322a and b). Normally one of these fields will be closely related to the topic of his thesis; one may be a major text, for example *Paradise Lost*; and the other two will be on fields in which his formal training has been deficient. The examinations will be based on reading lists submitted by the candidate and approved by the instructor. The lists should represent the minimum preparation for teaching an undergraduate course on the subject.

Dissertation and Defense. When a candidate has chosen and explored a topic for his thesis he must submit a formal proposal to the chairman, who will appoint a committee to confer with the student, and approve, modify, or reject the proposal.

Finally, the candidate must submit an acceptable monograph or some comparable contribution to learning, on a topic and in a form approved by the committee at his thesis conference, and must defend it at a final oral examination.

Courses of Instruction

In addition to the following courses, graduate students in English and American Literature, with the permission of the chairman of the department, may take for credit any Humanities and Comparative Literature courses in the 100 series. For description of such courses refer to the undergraduate catalog.

ENGLISH 121a and b. Old English

An introduction to Old English grammar, with special attention to the rapid attainment of skill in reading. Texts of prose and the shorter poems will be read in the first semester; *Beowulf* in the second semester.

Students may not enter the second semester without having taken the first semester or its equivalent.

Mr. Evans

ENGLISH 122b. Early Middle English Literature

Linguistic and literary study of texts of the 12th and 13th centuries. If time permits, some attention will be given to alliterative verse of the 14th century.

Mr. Evans

ENGLISH 142a. Elizabeth and Jacobean Drama

A survey of English drama from 1590 to 1640.

Mr. Levitan

***ENGLISH 147a. Milton**

The reading will include *Comus* and the minor poems, *Paradise Lost*, *Paradise Regained*, *Samson Agonistes*, as well as selections from the prose writings.

ENGLISH 150b. The Classical Background of English Poetry Mr. Rogers

ENGLISH 160a. Whitman and Dickinson Mr. Hindus

ENGLISH 161a. Anglo-Irish Literature

Yeats, Synge and Joyce. Mr. Grossman

***ENGLISH 172b. The English Novel: Nineteenth Century**

Open only to seniors and graduate students.

ENGLISH 180a. Continuity and Change in Modern Literature

The modern spirit of change, innovation and experiment in literature as expressed in some of the representative works of continental as well as American and English writers, among them: Flaubert, Dostoevsky, Zola, Mann, Eliot, Pound, Joyce, Kafka, Lawrence, Brecht. Mr. Rahu

***ENGLISH 181a. Henry James**

A close study of the novels of Henry James.

ENGLISH 182b. The American Novel: From Dreiser to Faulkner

Selected studies in the twentieth century American novel, with equal emphasis on the idea-patterns and elements of style and form entering into its development. Intensive analysis of single works by Dreiser, Anderson, Fitzgerald, Dos Passos, Hemingway, and Faulkner, with reference to other novels by the same authors.

Open only to seniors and graduate students. Mr. Rahu

***ENGLISH 183b. James Joyce**

A chronological survey of the poetry and prose.

ENGLISH 192b. History and Structure of the English Language

A study of the linguistic structure of modern English and of the historical processes through which it developed. Mr. Evans

ENGLISH 201a. Introduction to Literary Study

Mr. Hoover

Pro-Seminars

Pro-Seminars, numbered between 202 and 210, are courses designed for graduate students to enable them to make up deficiencies in various fields and subjects, and prepare them for seminar work.

***ENGLISH 204a. Pro-Seminar in Medieval Literature**

A study in the fourteenth century literature excluding Chaucer, focused this year on the Pearl Poet.

ENGLISH 205a. Pro-Seminar in Seventeenth Century Literature

John Donne. Mr. Harris

***ENGLISH 207a. Pro-Seminar in Nineteenth Century Literature**

* Not to be given in 1963-64.

Seminars

ENGLISH 212a. Seminar in the Novel

An investigation of the theory and techniques of the novel. Several texts will be treated in detail, among them, *Moll Flanders*, *Persuasion*, *Bleak House*, *Vanity Fair*, *Wings of the Dove*, and *Ulysses*. Mr. Konigsberg

*ENGLISH 213b. Seminar in Criticism

The prose of T. S. Eliot and Matthew Arnold.

ENGLISH 214a. Seminar in the Middle Ages

A graduate course in selected topics in medieval literature. This year some of the relations between religion and literature will be examined in such works as *Piers Plowman*, *Pearl*, certain of the *Canterbury Tales*, religious drama and the lyric. Mr. Evans

ENGLISH 215b. Seminar in Renaissance Literature

The literary situation of the 1590's.

Mr. Cunningham

ENGLISH 216b. Seminar in the Eighteenth Century

Swift and Johnson.

Mr. Hoover

*ENGLISH 217a. Seminar in the Nineteenth Century

Victorian intellectual texts and a selection of novels from the period.

ENGLISH 217b. Seminar in Shelley

Mr. Rogers

ENGLISH 218a. Seminar in Nineteenth Century American Literature

Hawthorne and Melville: The tradition of symbolism.

Mr. Swiggart

ENGLISH 218b. Seminar in American Literature

William Faulkner.

Mr. Swiggart

ENGLISH 219a. Seminar in American Poetry

Mr. Cunningham

ENGLISH 225b. Seminar in Seventeenth Century Literature

Spenser, Bunyan and the allegorical tradition.

Mr. Harris

ENGLISH 290a and b. Directed Research

Candidates for the Master's degree will enroll in this course for two semesters.

Mr. Wight 1st sem.

ENGLISH 300a and b. Directed Research

Research course for second-year candidates for the doctoral degree.

Mr. Hoover 2nd sem.

Staff

ENGLISH 301b. The English Seminar

Each student will deliver a fifty minute public lecture.

Required of second year candidates for the doctoral degree. To be announced

ENGLISH 311. Seminar in Teaching

For Teaching Assistants in English. *Non-credit*.

Mr. Wight

* Not to be given in 1963-64.

ENGLISH 321a and b. Earlier English Literature

Special fields.

*Required of third year candidates for the doctoral degree. Mr. Cunningham***ENGLISH 322a and b. Later English Literature and American Literature**

Special fields.

*Required of third year candidates for the doctoral degree. Mr. Rahr***ENGLISH 400a and b. Research***Staff***ENGLISH COMPOSITION 101a, 101aR. Directed Writing***Miss Calisher****ENGLISH COMPOSITION 102b. The Writing of Poetry****HUMANITIES 192b. History of Criticism: Plato to Dryden***Mr. Cunningham*

History of American Civilization

A new graduate program in the History of American Civilization, leading to the degree of Doctor of Philosophy in History, will begin operation in the academic year 1964-65.

Members of the Executive Committee for the program will be: Professors MAX LERNER, LEONARD W. LEVY, MARVIN MYERS, JOHN P. ROCHE; Associate Professor RAY GINGER.

Detailed information may be had by writing to the Dean, Graduate School of Arts and Sciences, Brandeis University, Waltham, Massachusetts 02154.

History of Ideas

Objectives

The program in the History of Ideas, leading to the degrees of Master of Arts and Doctor of Philosophy in History, is concerned with the development of the main ideas in western civilization, their connections with one another, and their relation to historical events and institutions. The aim of the program is to train future teachers in the intellectual foundations of the social sciences and humanities and in the problems and techniques of research in intellectual history. The curriculum is designed to go beyond the restrictive specialization of the traditional disciplines, and expressly to prepare future teachers to give courses in Western Civilization, general education and the history of ideas.

* Not to be given in 1963-64.

Admission

In addition to the general requirements for admission to the Graduate School specified in an earlier section of this catalog, the applicant should present an undergraduate major in history or philosophy. Students with inadequate preparation in these fields will be required to take additional courses to remedy deficiencies.

Faculty

Executive Committee: Professor HERBERT MARCUSE, *Chairman*; Associate Professor PETER DIAMADOPOULOS, *Vice Chairman*; Professor NAHUM N. GLATZER; Associate Professor HAROLD WEISBERG; Assistant Professor HEINZ M. LUBASZ.

Staff: Professors ALEXANDER ALTMANN, DAVID S. BERKOWITZ, LEWIS A. COSER, NAHUM N. GLATZER, EDGAR N. JOHNSON, FRANK E. MANUEL, HERBERT MARCUSE, JOHN P. ROCHE, PETER J. D. WILES; Associate Professors EUGENE C. BLACK, PETER DIAMADOPOULOS, FREDERIC T. SOMMERS, MAURICE R. STEIN, HAROLD WEISBERG; Assistant Professors HEINZ M. LUBASZ, RAMSAY MACMULLEN, JOSEPH S. MURPHY, GERASIMOS X. SANTAS; MESSRS. HAROLD L. BURSTYN, THOMAS HEGARTY, AVIGDOR LEVY.

Degree Requirements

All programs of study will be worked out in consultation with the student's adviser.

Master of Arts

Program of Study. The program for the Master of Arts consists of four full courses (at least one-half course to be a research seminar) and is distributed among the following groups:

- I Introduction to the History of Ideas (one full course required).
Fundamental concepts: classical antiquity (first term); the sixteenth and seventeenth centuries (second term).
- II Seminars in institutional history (one-half course required).
- III Special fields and major epochs in the history of thought (three half-courses or one full and one half course required).
 - (1) Philosophical thought
 - (2) Political and social thought
 - (3) Religious thought
 - (4) Scientific thought
- IV Problems in historiography and in the theory of history (one full course required).

Language Requirement. A proficient reading knowledge of either French or German is required. Examinations in both languages will be administered at the beginning of the fall term. Students who fail an examination may apply for re-examination at the beginning of the second term on payment of a fee of \$25. Failure to pass a language examination within the first year will render the student ineligible for further study in the program.

Qualifying Examination. To qualify for the Master's degree, the candidate must pass examinations in the following areas:

- a. Fundamental concepts in philosophical thought. (Written)
- b. Political and social thought of one major epoch with emphasis on a special topic, e.g., political and social thought of the nineteenth century: conservatism. (Oral)
- c. Religious or scientific thought of a major epoch other than the area presented under "b," with emphasis on a special topic, e.g., reformation theology and the predestination doctrine; scientific thought of the seventeenth century and the rise of mechanism. (Oral)

Doctor of Philosophy

To be eligible to continue study toward the Ph.D. degree, the student must pass the Master's examinations with distinction. A student with a Master's degree from another university who wishes to enter the Ph.D. program in the History of Ideas may be required to pass an equivalent examination.

Program of Study. The program of study for the Ph.D. consists of at least one year (four full courses) beyond the Master's degree. Students will enroll in advanced research seminars and reading courses which should be reasonably distributed among the major fields in the history of ideas.

Language Requirements. Proficiency in reading both French and German is required of all doctoral candidates. Examinations in both languages will be given at the beginning of each term. The examination in the student's second language must be taken not later than the beginning of the fifth term in residence, however, students are strongly urged to take it at an earlier date. Students who fail to pass the examination at a date earlier than the fifth term may apply for re-examination at the beginning of the fifth term on payment of a fee of \$25. Failure to pass the second language examination within the prescribed time limits will render the student ineligible for further study in the program.

Students who intend to do research in a field requiring a language other than French or German may, with the approval of the Chairman of the Executive Committee, substitute this language for either French or German.

Admission to Candidacy. A student may be admitted to candidacy for the Ph.D. degree when (1) he has passed the Master's examination with distinction, (2) he has completed his residence requirement, (3) he has completed the foreign language requirements, and (4) the subject of his dissertation has been approved by the History of Ideas Committee. At the time a student submits a prospectus for his dissertation, he must submit evidence of his ability to read proficiently the languages that will be required in his research.

Dissertation and Final Oral Examination. The Chairman of the History of Ideas Program will appoint a reading committee which shall include the dissertation supervisor and two additional members. When the dissertation has been read and accepted by this committee, a Final Oral Examination will be scheduled wherein the candidate will defend his dissertation.

Classification Scheme for Courses of Instruction

- Group I Introduction to the History of Ideas
- Group II Institutional History
- Group III A. Special Fields
 - Philosophical Thought
 - Scientific Thought
 - Religious Thought
 - Social and Political Thought
 B. Major Epochs
- Group IV Historiography and the Theory of History
- Group V Doctoral Research

Courses of Instruction

Group I

HISTORY OF IDEAS 200a. The Origin of Western Thought in Antiquity

An analysis of some of the basic concepts of nature, man and knowledge in Greek thought. *Messrs. Diamadopoulos and Marcuse*

HISTORY OF IDEAS 200b. The Birth of the Modern Era: Sixteenth and Seventeenth Centuries

The development of the new concepts of method, rational understanding and experience. *Mr. Diamadopoulos*

Group II

Any history course below the 100 level may be taken for credit in the program by petitioning the Dean of the Graduate School for permission to do so.

HISTORY 106a. Changing Greek City-State

Reading of sources, especially Thucydides, with modern commentary, covering the period 431 to 323 B.C. *Mr. MacMullen*

HISTORY 107b. Studies in the Decline of the Roman Empire

An intensive study of government, society and culture of the fourth century. *Mr. MacMullen*

HISTORY 123a. Europe in the Early Middle Ages

The foundations of western European civilization in the early medieval period (c. 500-1100 A.D.). Attention will also be given to eastern Europe and the Near East. *Mr. Johnson*

HISTORY 123b. Europe in the Later Middle Ages

Emphasis will be placed upon medieval civilization at its height in the twelfth and thirteenth centuries. *Mr. Johnson*

HISTORY 127a. History of Islam

See Near Eastern and Judaic Studies 142a. *Mr. A. Levy*

***HISTORY 127b. Islamic Religion and Institutions**

See Near Eastern and Judaic Studies 142b.

***HISTORY 134a. Growth of Modern Industrial Society**

The problem of the industrial revolution in Europe with emphasis on Great Britain, France, and Germany.

HISTORY 143a. History of Russia to 1825

Lectures, reports and discussions on political, social, economic and intellectual problems in the history of Russia from the Scythians to the Decembrists.

Mr. Hegarty

HISTORY 143b. History of Russia, 1825 to 1963

Lectures, reports and discussion on political, social, economic and intellectual topics in the history of Russia from the accession of Nicholas I to the present.

Mr. Hegarty

HISTORY 144a. History of Britain, 1760-1867

Social, economic, cultural, and political history of Britain from the reign of George III to the mid-Victorian era.

Mr. Black

HISTORY 144b. History of Britain, 1867 to the Present

Social, economic, cultural, and political history of Britain from the Second Reform Act to the evolution of the welfare state.

Mr. Black

HISTORY 145a. History of Germany from 1740 to 1870*HISTORY 145bR. History of Germany from 1870 to 1945**

The political, economic, social and intellectual history of Germany from the founding of the Second Reich to the collapse of the Third Reich. *Mr. Lubasz*

HISTORY 181a. History of Jews in Antiquity and the Middle Ages

See Near Eastern and Judaic Studies 126a.

Mr. Glatzer

* Not to be given in 1963-64.

***HISTORY 181b. History of the Jews in Modern Times**

See Near Eastern and Judaic Studies 126b.

Group III A. Special Fields

(1) Philosophical Thought

HISTORY OF IDEAS 212a. Plato's Early Dialogues

A close reading of Plato's early dialogues with special emphasis on the Socratic method of argument and the Socratic thesis that virtue is knowledge. *Mr. Santas*

HISTORY OF IDEAS 215b. Problems in Hellenistic Philosophy

A selective study of concepts and arguments traditionally associated with the Stoic, Epicurean and Sceptic thought. *Mr. Diamadopoulos*

HISTORY OF IDEAS 220a. Continental Rationalism

An intensive study of selected texts from Descartes, Spinoza, Leibnitz, and Kant. *Mr. Diamadopoulos*

HISTORY OF IDEAS 220b. British Empiricism

An intensive study of selected topics from Locke, Berkeley, Hume, and Reid. *Mr. Sommers*

***HISTORY OF IDEAS 221a. The Philosophy of Kant**

**HISTORY OF IDEAS 222. Philosophies of History from the Late
Seventeenth Century to the Present**

Mr. Manuel

***HISTORY OF IDEAS 225a. Political Theory: The Eighteenth and Nineteenth Centuries**

The political theory of the late eighteenth and nineteenth centuries: conservatism, liberalism and totalitarianism, theories of the French Revolution, counter-revolution, Bonapartism.

HISTORY OF IDEAS 227b. The Philosophy of Hegel

Introduction to Hegel's philosophy with intensive readings from the *Logic* and the *Phenomenology*. Special emphasis will be placed on Hegel's position in the history of philosophical thought. *Mr. Marcuse*

HISTORY OF IDEAS 230a. American Pragmatism

An historical survey and analysis of the pragmatic tradition in American philosophy. Selected texts of Peirce, James, Dewey, and Lewis will be discussed. *Mr. Weisberg*

(2) Scientific Thought

HISTORY OF IDEAS 231a. The Origins of Modern Science

Beginning with the ancient and medieval backgrounds of science, the course emphasizes scientific developments during the sixteenth and seventeenth centuries. *Mr. Burstyn*

HISTORY OF IDEAS 231b. The Development of Modern Science

The key social and institutional problems of eighteenth and nineteenth century scientific expansion with some attention to the impact of scientific developments on intellectual history. *Mr. Burstyn*

* Not to be given in 1963-64.

HISTORY OF IDEAS 235a. The History of Scientific Ideas

A seminar.

*Mr. Burstyn***(3) Religious Thought*****HISTORY OF IDEAS 242a. The Book of Job and the Problem of Evil**

See Near Eastern and Judaic Studies 116a.

HISTORY OF IDEAS 244a. The Medieval Doctrine of the Intellect and its Impact on Jewish Philosophy

See Near Eastern and Judaic Studies 370a.

*Mr. Altmann****HISTORY OF IDEAS 244b. Faith and Reason in Medieval Philosophy**

An analysis of the various attempts made in medieval Islam, Judaism, and Latin Christianity to relate philosophy to religious truth. A number of important texts will be read in English translation.

HISTORY OF IDEAS 247b. Studies in Eschatological Theories

Messianic and Apocalyptic concepts in the Old Testament prophets, Apocrypha and the Dead Sea writings; in post-Biblical Judaism and early Christianity; Messianic movements in the Middle Ages.

*Mr. Glatzer***HISTORY OF IDEAS 248b. The Thought of the Latin Fathers of the Church**

Readings, discussions and seminar reports and papers on the thought and careers of Saints Jerome, Ambrose, Augustine and Gregory the Great.

*Mr. Johnson***HISTORY OF IDEAS 249a. Philosophy of Religion from Kant to Hegel**

An introduction to the thought of Kant, Schleiermacher, Fichte, Schelling and Hegel on the role of religion within the system of human culture. Reading of selected texts in English translation.

*Mr. Altmann***(4) Political and Social Thought****HISTORY OF IDEAS 251a. Greek Social and Political Ideas***Mr. Marcuse***HISTORY OF IDEAS 252a. History of Medieval Political Theory**

Readings and lectures in the general and specialized historical materials dealing with the evolution of political and social ideas from Christ through Luther, with emphasis on the political theory of the Papacy.

*Mr. Berkowitz****HISTORY OF IDEAS 255a. Problems in Sixteenth Century Political Theory**

A research seminar requiring a finished scholarly report.

***HISTORY OF IDEAS 260a. Political Theory in the Eighteenth and Nineteenth Centuries**

The political theory of the late eighteenth and nineteenth centuries: conservatism, liberalism and totalitarianism, theories of the French Revolution, counter-revolution, Bonapartism.

HISTORY OF IDEAS 261b. Eighteenth Century Political Theory

Historical and systematic analysis of representative political texts with special emphasis on theories of natural law and natural rights, theory of state and society, political authority and obligation, the concept of freedom.

Mr. Murphy

* Not to be given in 1963-64.

HISTORY OF IDEAS 263. Social Thought in the Nineteenth Century

Selected problems. A reading knowledge of either French or German is required. *Mr. Manuel*

***HISTORY OF IDEAS 264. French Political Thought in the Nineteenth Century**

A systematic discussion of the main political theories in nineteenth century France. Counter-revolutionary thought; trends in French liberalism; the main French Socialist thinkers.

HISTORY OF IDEAS 265. Classical Sociological Theory

See Sociology 200.

Mr. Stein, Fall sem.

Mr. Coser, Spring sem.

***HISTORY OF IDEAS 266b. The Development of German Sociological Theory from 1880 to 1914**

The course will center on the sociological work of Max Weber and George Simmel, but will also consider parallel themes as developed by Dilthey, Tönnies, Sombart, and Troeltsch.

***HISTORY OF IDEAS 267b. Ideology of Social Movements**

See Sociology 123b.

HISTORY OF IDEAS 268b. History of Economic Thought

A survey of economic thought from antiquity to the modern period with most weight being given to developments since the seventeenth century. Emphasis is placed on the understanding of economic thought in the context of the economic circumstances of its time. *Mr. Wiles*

HISTORY OF IDEAS 270a. History of American Constitutional Law and Theory

The history of the Constitution and its interpretation by the Supreme Court against the background of political and economic change from the foundations of the Republic to the Civil War. Origins and development of American Constitutional thought and institutions, with stress on problems of judicial review and the role of judiciary in defining the powers and limitations of government. *Mr. Roche*

HISTORY OF IDEAS 270b. History of American Constitutional Law and Theory

The development of American constitutional law and theory since the Civil War with the emphasis on the adaptation of the Constitution to the changing needs of American society. *Mr. Roche*

***HISTORY OF IDEAS 271a. The Liberal Tradition in America**

An historical analysis and critique of the liberal tradition in American political and social thought, foreign policy, reform movements, literature and religion. Special attention will be paid to the significance of the new conservatism to American liberalism.

***HISTORY OF IDEAS 275b. Contemporary Political Theory**

Western political thought since the end of the Victorian era discussed in relation to political and social institutions. *Mr. Murphy*

* Not to be given in 1963-64.

B. Major Epochs

*HISTORY OF IDEAS 278b. Intellectual History of the Twelfth and Thirteenth Centuries

Readings, reports, and seminar papers on selected topics related to the various aspects of the medieval revival.

*HISTORY OF IDEAS 280. Renaissance and Reformation in Europe

Lectures, readings and reports on selected topics dealing with the new currents in literature, scholarship, art, political theory and religion.

HISTORY OF IDEAS 281aR. Renaissance and Reformation in Sixteenth Century England

The development of institutions and outlooks in Tudor England under the impact of Renaissance Reformation currents. *Mr. Berkowitz*

HISTORY OF IDEAS 282b. Research in Intellectual History of the Sixteenth and Seventeenth Centuries

A research seminar requiring a finished scholarly report. *Mr. Berkowitz*

*HISTORY OF IDEAS 283b. Problems in Intellectual History of the Sixteenth and Seventeenth Centuries

*HISTORY OF IDEAS 284b. Topics in the History of Seventeenth Century England

A graduate seminar requiring a finished scholarly report. Topics may be selected dealing with political theory, constitutional thought, and certain aspects of theology and philosophy.

*HISTORY OF IDEAS 285a and b. Problems in the Intellectual History of the Enlightenment

Selected problems. A reading knowledge of either French or German is required.

HISTORY OF IDEAS 286. Main currents in Modern European Thought

A study of main currents in European thought since the end of the seventeenth century as revealed in the writings of men who profoundly influenced the ideas and sentiments of the modern world. Emphasis will be placed on the great thinkers who formulated a moral outlook for their age. Lectures and readings of selected texts. *Mr. Manuel*

*HISTORY OF IDEAS 287b. The Romantic Movement

Selected problems. A reading knowledge of either French or German is required.

HISTORY OF IDEAS 288. Intellectual History of Europe: Nineteenth and Twentieth Centuries

European thought in its social and political context. Lectures and the reading of selected texts. *Mr. Lubasz*

HISTORY OF IDEAS 289b. Social and Intellectual History of Russia: Eighteenth and Nineteenth Centuries

This course will treat Russian thought in its socio-economic backgrounds and will focus on the ideas of Radishchev, Karamzin, the Decembrists, the Slavophiles, Herzen, Chernyshevsky, Bakunin, the Populists, the Panslavists and Pobedonostsev.

* Not to be given in 1963-64.

Mr. Hegarty

Group IV

HISTORY OF IDEAS 290a. History and the Problem of Historical Knowledge

An analysis of commonly employed arguments in the historical reconstruction of scientific and philosophical ideas. *Mr. Diamadopoulos*

HISTORY OF IDEAS 290b. History and the Problem of Historical Knowledge

An examination of philosophical problems affecting history and the social sciences. Among topics to be discussed are: the problem of historical knowledge, explanation of history, methodological individualism, *Verstehen*, and the status of general laws in history and the social sciences. *Mr. Weisberg*

HISTORY OF IDEAS 291a. Problems in Historiographical Research

Mr. Berkowitz

*HISTORY OF IDEAS 292a. Sociology of Knowledge

See Sociology 110a.

Group V

HISTORY OF IDEAS 400. Doctoral Research

Mr. Marcuse and Staff

Mathematics

Objectives

The graduate program in mathematics is designed primarily to lead to the Doctor of Philosophy degree. The formal course work is devoted to giving the student a broad foundation for work in modern pure mathematics. An essential part of the program consists of seminars on a variety of topics of current interest in which mathematicians from greater Boston often participate. In addition, the Brandeis-Harvard-M.I.T. Mathematics Colloquium gives the student an opportunity to hear the current work of eminent mathematicians from all over the world.

Admission

The general requirements for admission to graduate work in mathematics are the same as those for the Graduate School as a whole. The department has available a variety of fellowships and scholarships for well qualified students. To be considered for such financial support the student should submit application by March 1, 1964.

Faculty

Professor DAVID A. BUCHSBAUM, *Chairman*: Algebra and Homological Algebra.

Visiting Professor ALDO ANDREOTTI: Algebraic Geometry.

* Not to be given in 1963-64.

- *Professor MAURICE AUSLANDER: Algebra and Homological Algebra.
- Professor TERUHISA MATSUSAKA: Algebraic Geometry.
- Associate Professor EDGAR H. BROWN, JR.: Algebraic Topology.
- Associate Professor HEISUKA HIRONAKA: Algebraic Geometry.
- Associate Professor WILLIAM L. HOYT: Algebraic Geometry.
- Associate Professor JOSEPH J. KOHN: Analysis and Differential Geometry.
- *Associate Professor RICHARD S. PALAIS: Differential Topology.
- Associate Professor HUGO ROSSI: Analysis.
- Visiting Assistant Professor JOSE BARROS-NETO: Analysis.
- Assistant Professor HAROLD I. LEVINE: Differential Topology.
- Assistant Professor DOCK SANG RIM: Algebra and Homological Algebra.
- Assistant Professor ROBERT T. SEELEY: Analysis.
- DR. DIETMAR ARLT: Algebraic Topology.

Degree Requirements

Master of Arts

1. One year's residence as a full-time student.
2. Successful completion of an approved schedule of courses.
3. Satisfactory performance on the General Examination which is normally taken by all degree students at the beginning of their second year.
4. Proficiency in reading French or German.

Doctor of Philosophy

1. Residence as a full-time student for two years.
2. Successful completion of an approved schedule of courses.
3. Superior performance on the General Examination.
4. Doctoral dissertation approved by the department.
5. Final examination consisting of the defense of dissertation.
6. Proficiency in reading both French and German.

Program of Study. Each student must complete a schedule of courses approved by his adviser. The normal first year of study consists of Mathematics 101, 111, and 121. Students are expected to attend seminars of their choice in addition to Mathematics 199 which is required. The first year's work should be followed by three courses in the 200 series. After the second year, advanced courses, seminars and independent reading are offered to prepare the student for work on a dissertation.

General Examination. This examination, usually taken at the beginning of the second year of study, will be based on the preceding work.

* On leave, 1963-64.

Admission to Candidacy. To be admitted to candidacy for the Ph.D. degree in Mathematics, the student must demonstrate a superior performance on the General Examination and must be recommended for candidacy by the department.

Dissertation and Defense. The doctoral degree will be awarded only after the submission and acceptance of an approved dissertation and after the successful defense of that dissertation.

Courses of Instruction

The 100 and 200 courses meet three hours per week for the entire year and carry six credits except for 101 which meets four hours per week and carries eight credits. The seminar courses meet one hour per week and are non-credit courses. All courses in the 300 series meet three hours a week for one semester and carry three credits.

MATHEMATICS 101a and b. Algebra I

Groups, rings, fields, Galois theory, representations and modules. *Mr. Hoyt*

MATHEMATICS 111a and b. Analysis I

Fundamental existence theorems for several real variables, manifolds and Riemann surfaces. *Mr. Barros-Neto*

MATHEMATICS 121a and b. Point Set Topology

Set theory, topological spaces, function spaces and covering spaces. *Mr. Arlt*

MATHEMATICS 140. Analysis

Real numbers, metric spaces, Weierstrasse approximation theorem, fundamental existence theorems, implicit function theorem and complex variables. *Mr. Rossi*

MATHEMATICS 199. Problem Seminar

A seminar required of all first year graduate students. *Staff*

*MATHEMATICS 201. Algebra II

Function fields and commutative rings.

MATHEMATICS 202a and b. Algebraic Geometry I

Introduction to algebraic geometry. *Mr. Hironaka*

MATHEMATICS 203a and b. Algebraic Number Theory I

Ideal class group, Dirichlet's units theorem, L-function, Galois cohomology, local and global class field theory. *Mr. Rim*

*MATHEMATICS 204a or b. Homological Algebra I

*MATHEMATICS 211. Analysis II

Topics in functional analysis and in the theory of distributions and their applications to partial differential equations. Unbounded operators, compact operators, the closed graph theorem, Fourier transforms, classification of partial differential equations, boundary value problems, etc.

* Not to be given in 1963-64.

MATHEMATICS 212a. Functional Analysis

Topological vector spaces, Banach spaces, compact operators, integral equations, distributions. *Mr. Seeley*

MATHEMATICS 212b. Harmonic Analysis

Elementary Banach algebras, topological groups, Plancherel theorem, Pontryagin duality, group representations. *Mr. Seeley*

MATHEMATICS 221a and b. Algebraic Topology I

Sheaves, homology theory, and homotopy theory. *Mr. Levine*

***MATHEMATICS 222. Differential Geometry**

Introduction to differentiable manifolds.

MATHEMATICS 291. Algebra Seminar

Messrs. Buchsbaum and Rim

MATHEMATICS 292. Analysis Seminar

*Messrs. Kohn, Levine,
Rossi and Seeley*

MATHEMATICS 293. Topology Seminar

Messrs. Arlt and Brown

MATHEMATICS 298a or b. Readings in Mathematics**MATHEMATICS 301a or b. Homological Algebra****MATHEMATICS 302a and b. Algebraic Geometry II**

Mr. Matsusaka

MATHEMATICS 303a and b. Algebraic Number Theory II**MATHEMATICS 311a or b. Fourier Analysis****MATHEMATICS 312a. Selected Topics in Complex Variables**

Mr. Kohn

MATHEMATICS 312b. Selected Topics in Complex Variables

Mr. Rossi

MATHEMATICS 313. Group Representation and Analysis of Groups**MATHEMATICS 321a or b. Algebraic Topology II****MATHEMATICS 322a and b. Differential Topology**

Mr. Brown

MATHEMATICS 323a or b. Lie Algebras**MATHEMATICS 324a or b. Lie Groups*****MATHEMATICS 325a or b. Complex Manifolds****MATHEMATICS 400. Doctoral Dissertation**

Staff

Mediterranean Studies

Objectives

The graduate program in Mediterranean Studies aims at inducting the student into the investigation of major problems involving the meeting of different peoples in and around the Mediterranean Sea, where Western civilization was first created and then developed. The instruction will train the student to master the primary sources as he learns the broad synthesis.

* Not to be given in 1963-64.

Master of Arts as well as Doctor of Philosophy candidates are expected to show a grasp of the problem as a whole, as well as the ability to work in a variety of different sources. Doctor of Philosophy candidates will be required to demonstrate also a capacity for original research.

The scope of the department embraces Mediterranean developments throughout Antiquity, the Middle Ages, and Modern Times.

Courses will normally involve two or more interrelated sources. While it is desirable for the student to know as many of the sources as possible in advance, no student is expected to come ideally equipped with complete linguistic preparation. If a course requires the use of a source that the student has not already studied, he will ordinarily be permitted to enroll, provided that he is concurrently taking a basic language course to make up the deficiency.

Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area.

Students planning to enter this department should take as much Hebrew, Greek and Latin as possible during their undergraduate course of study.

Faculty

Professor CYRUS H. GORDON, *Chairman*: Cuneiform, Egypto-Semitic, and Mediterranean Studies.

Visiting Professor JOSEPH DE SOMOGYI: Islam.

Associate Professor DWIGHT W. YOUNG: Egypto-Semitic and Cuneiform Studies.

Degree Requirements

Master of Arts

Program of Study. Each candidate for the Master's degree is required to complete satisfactorily not less than twenty-four semester hours of course work in the department, plus any courses outside the department that the major professor may prescribe. The candidate must also show a command of either Latin or Greek, and of Hebrew or Arabic, plus at least one other Oriental language (such as Akkadian, Ugaritic, or Egyptian).

Language Requirement. A reading knowledge of one modern foreign language (ordinarily French or German) is required.

Qualifying Examinations. The student must demonstrate, in written and oral examinations, proficiency in the sources of two major areas of the program and an ability to synthesize them. A broad grasp of the Mediterranean origins of Western Civilization will be required of all candidates, beyond the specific topics covered in courses.

Doctor of Philosophy

The requirements are the same as for the Master of Arts degree, plus twenty-four additional semester hours of course work in the department, a reading knowledge of two modern foreign languages (ordinarily French and German), and a doctoral dissertation.

Admission to Candidacy. A student shall be eligible for admission to candidacy upon completing his language requirements and satisfactorily passing his written and oral examinations. Proficiency in those examinations must be demonstrated in three major areas of the program; e.g., Assyrian, Greek, and Hebrew (texts and history), or Egyptian, Ugaritic, and Arabic.

Dissertation and Defense. The dissertation should be a significant and original contribution to scholarship and should demonstrate a capacity for independent research based on primary sources. After submission of the dissertation, the candidate will be expected to defend it in a final oral examination.

Courses of Instruction

MEDITERRANEAN STUDIES 102. Latin Sources Bearing on Interregional Mediterranean Problems

In 1963-64, this course will be devoted to a fundamental training in Latin based inductively on the analysis and interpretation of the *Poenulus* of Plautus including the Punic dialogue, during the first semester. Selections from the *Aeneid* involving connections with the Aegean and with Carthage will be studied in the second semester.

Mr. Gordon

MEDITERRANEAN STUDIES 103. West Semitic Sources for the Common Background of Greek and Hebrew Civilizations

The first semester will be devoted to a fundamental training in Biblical Hebrew based on the linguistic analysis and cultural interpretation of Old Testament passages dealing with the heroic age of Israel. In the second semester, Phoenician and Minoan texts will be interspersed with the Hebrew readings.

Mr. Young

MEDITERRANEAN STUDIES 104. Hellenic Sources for the Common Background of Greek and Hebrew Civilizations

The first semester will be devoted to a fundamental training in Homeric Greek based on the linguistic analysis and cultural interpretation of selections

from the *Iliad* and *Odyssey*. In the second semester, the Homeric readings will be supplemented with the study of Linear B tablets in Mycenaean Greek.

Miss Andronikou

***MEDITERRANEAN STUDIES 105. Akkadian**

Studies in Akkadian grammar. Introduction to the Sumero-Akkadian script. Reading and critical analysis of various types of texts.

***MEDITERRANEAN STUDIES 106. Middle Egyptian**

The Shipwrecked Sailor, *The Romance of Sinuhe*, and *The Journey of Wenamon* will be read with a view to delineating the Egyptian contribution to East Mediterranean literature. Selected historical and religious texts from the New Kingdom will also be studied. The course will include an investigation of linguistic problems with special reference to Biblical Hebrew.

***MEDITERRANEAN STUDIES 107. Late Egyptian**

An inductive course based on the reading of texts such as *The Tale of the Two Brothers*, *The Doomed Prince*, *The Taking of Joppa*, and *The Wisdom of Amenemope*.

***MEDITERRANEAN STUDIES 108. Ugaritic**

An introduction to the Ugaritic language and literature. Reading of Ugaritic epics and myths; analysis of their influence on the poetry and prose of the Bible.

***MEDITERRANEAN STUDIES 109. Akkadian Documents from the Amarna Age**

Texts from Nuzu, Ugarit, Alalakh, and Tell el-Amarna will be analyzed. Constant attention will be given to the bearing of the material on biblical problems.

MEDITERRANEAN STUDIES 110. Assyrian Royal Inscriptions

Philological and historical analysis of cuneiform selections which recount exploits in Canaan. Problems in Akkadian grammar will be discussed. The relation of the assignments to problems in the Hebrew Bible will be stressed. *Mr. Young*

MEDITERRANEAN STUDIES 111. The Pyramid Age

The texts, monuments and cultural history of Egypt in the third millennium.

Mr. Young

***MEDITERRANEAN STUDIES 112. The Achaemenian Age**

Herodotus' account of the Persians (including the invasions of the West by Darius I and Xerxes I) will be studied together with the biblical books of the Persian period (especially Ezra, Nehemiah and Esther). Use will also be made of the Old Persian, Babylonian and Aramaic inscriptions of the period.

***MEDITERRANEAN STUDIES 120. Colloquial Arabic**

A workshop aimed at enabling the student to understand the principal dialects and to speak the vernacular of Israel, Jordan, Lebanon and Syria.

No prerequisites.

***MEDITERRANEAN STUDIES 122. Arabic Within the Framework of Comparative Semitics**

A beginner's course in written Arabic designed for students studying other Semitic languages and interested in comparative linguistics

* Not to be given in 1963-64.

***MEDITERRANEAN STUDIES 131. Pro-Seminar: Greco Hebrew Martial Poetry**

Tyrtaeus, Solon and other Greek authors studied simultaneously with the dirge of David and the military Psalms. A reading knowledge of Hebrew and Greek is required.

***MEDITERRANEAN STUDIES 201. The Cuneiform Records of Anatolia and Adjacent Areas**

Hittite, Ugaritic and selected Akkadian tablets will be read with a view to investigating the transmission and development of culture around the East Mediterranean during the Amarna and Mycenaean periods. The purpose of the course is to delineate the backdrop of classical Hebrew and Greek civilizations.

***MEDITERRANEAN STUDIES 202. The Amarna Age Synthesis**

The class will read a variety of ancient texts that will serve as a springboard for delineating the origins of western culture. The emphasis will be on Ugaritic poems that bridge specific segments of early Hebrew and Greek literatures.

MEDITERRANEAN STUDIES 203. Ethical and Magic Literatures in the Greco-Roman World

A study of spirituality and superstition as two strands in the fabric of Greco-Roman culture. West Semitic incantations and Coptic ethical literature will serve as the springboard for seminar discussions. *Mr. Gordon*

MEDITERRANEAN STUDIES 206. The West Semites

The texts and history of the Northwest Semitic peoples. The first semester will be devoted to the Minoans, Phoenicians and Carthaginians. The Syro-Aramaic peoples, including the Mandeans, will be studied during the second semester.

Mr. Gordon

MEDITERRANEAN STUDIES 220. The Islamic States

Mr. de Somogyi

MEDITERRANEAN STUDIES 221. Intermediate Literary Arabic

During 1963-64, selections from Hadith literature will be read. *Mr. de Somogyi*

MEDITERRANEAN STUDIES 222. Advanced Literary Arabic

Selected readings from *Alf layla wa-layla* with a detailed treatment of Muslim folklore. *Mr. de Somogyi*

***MEDITERRANEAN STUDIES 250. South Arabic**

Grammar and analysis of Minean and Sabeian inscriptions.

MEDITERRANEAN STUDIES 300. History of West Semites to the Assyrian Conquest

Sources and reconstruction of history of West Semites (Amorites, Mari, Alalakh, Ugarit, Phoenicia, Canaan, Hebrews and early Aramaeans), with special reference to their political and social organization, their expansion to Mesopotamia, Egypt and the Aegean, and their role in the cultural evolution of the Mediterranean area. *Mr. Astour*

***MEDITERRANEAN STUDIES 301. Late Assyrian Civilization**

This course will meet one hour weekly to analyze Assyrian texts and monuments. The Brandeis collection of Assyrian reliefs (many of them inscribed) will be studied in detail. Outside readings will be assigned on the history, literature, art and archeology of Assyria.

Prerequisite: A knowledge of Assyrian cuneiform.

* Not to be given in 1963-64.

MEDITERRANEAN STUDIES 400. Research in Mediterranean Studies

Individual guidance for doctoral candidates engaged in thesis research.

Staff

Music

Objectives

The graduate program in Music, leading to the degrees of Master of Fine Arts and Doctor of Philosophy, is designed to provide a command of the craft of composition and an understanding of the nature, structural basis, and historical development of music.

Three general fields of study are offered in music:

1. *Musical Composition*. This program leads to the degree of Master of Fine Arts.

2. *Music Theory and Composition*. This program leads to the degrees of Master of Fine Arts and Doctor of Philosophy.

3. *History of Music*. This program leads to the degrees of Master of Fine Arts and Doctor of Philosophy.

Students must specialize in one of these areas but are expected to acquire a background in all three.

Admission

Only a limited number of students will be accepted. The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this area of study.

Applicants for study in Musical Composition or Music Theory are required to submit, in addition to a transcript of their undergraduate records, evidence of qualification in the form of examples of original work in musical composition and advanced work in musical theory. Applicants for admission in the History of Music should submit examples of their prose writing on music as evidence of their ability to handle the language and specialized vocabulary. Undergraduate theses or term papers will be satisfactory. This work should be submitted together with the formal Application for Admission.

All applicants are expected to have some proficiency at the piano or on an orchestral instrument. Information about this should be furnished when making formal application.

Admission is granted for one academic year at a time. Students in residence must make formal application for readmission to the department between March 1 and March 15. Readmission will be refused in cases where students have not demonstrated a capacity for acceptable graduate work.

Faculty

Associate Professor KENNETH J. LEVY, *Chairman*; Professors ARTHUR BERGER, HAROLD SHAPERO; Associate Professors ROBERT L. KOFF, CALDWELL TITCOMB; Assistant Professor PAUL H. BRAINARD; MISS MADELINE FOLEY; MESSRS. MARTIN BOYKAN, EUGENE LEHNER, ALVIN LUCIER, JOEL SPIEGELMAN.

Degree Requirements

Master of Fine Arts

Language Requirements.

Group A: French, German, Italian.

Group B: Spanish, Latin, Hebrew, Greek (and other languages at the discretion of the Music faculty).

A reading knowledge of a language from Group A is normally required of all applicants for admission to a graduate program in music.

Candidates for the Master's degree specializing in Musical Composition must possess a reading knowledge of two of the above languages, of which at least one must be from Group A. (The combination of Italian and Spanish will not be approved).

Candidates for the Master's degree specializing in Music Theory or in History of Music must possess a reading knowledge of two languages in Group A.

Foreign language course credits will not in themselves constitute fulfillment of the language requirements for advanced degrees. All candidates must pass language examinations set by the Music faculty and offered periodically during the academic year. Students are urged to take these examinations at the earliest feasible date. In case of failure, an examination may be taken more than once.

The language examinations are designed to test the students' ability to make ready and accurate use of critical and literary works. Normally each examination will contain three passages for written translation into idiomatic English: (1) classical or modern prose; (2) classical or modern poetry, often poetry that has been set to music; and (3) critical prose dealing with music. Dictionaries may be used in these examinations.

Instrumental Proficiency. At least moderate proficiency at the piano is required of all candidates for advanced degrees.

Residence Requirements. Six full courses or the equivalent in half-courses at the graduate level, completed with distinction, and a thesis are required of all candidates.

The department normally allows credit for no more than one full course taken at another institution.

In general, the program is completed in two academic years. Students should take no more than four full courses in any one year. It is suggested, however, that students pursue no more than three full courses during the year in which they take general examinations and submit a thesis. Students holding teaching assistantships may reduce their load to two courses.

Examinations. Early in March of their first year of study, graduate students will be expected to pass an examination in the standard literature of music from the early eighteenth century to the present. Upon admission, each candidate will receive a list of works to guide his listening.

When their program of study is completed, candidates for the degree of Master of Fine Arts must pass with distinction written general examinations in theory and history, one of which will be their major field, the other their minor field.

Thesis. Candidates for the degree of Master of Fine Arts in Music are required to submit a thesis. For candidates in Musical composition this will consist of a musical composition, its scope to be approved by the Music faculty. For candidates in the History of Music or in Music Theory and Composition it will be an analytical or historical study on a topic acceptable to the Music faculty. Part of this requirement in Music Theory and Composition may be met by an original musical composition.

Doctor of Philosophy

Residence Requirements. A minimum of eight full courses or the equivalent in half-courses at the graduate level, completed with distinction, are required of all candidates.

In general, the program will be completed in three academic years.

Applicants who have done graduate work elsewhere may apply for transfer of credit for such work; a maximum of one year of residence may be granted.

Instrumental Proficiency. At least moderate proficiency at the piano is required of all candidates.

Language Requirements. Candidates for the Doctor's degree in Music must possess a reading knowledge of all three languages in Group A. (In exceptional cases, the Music faculty may accept a language in Group B in lieu of Italian).

Examinations. Candidates will be expected to pass with unusual distinction the written general examination for the M.F.A. After meeting their language and residence requirements they must pass the special oral qualifying examination. Upon completion of their dissertation they will be expected to defend it in an oral examination.

Admission to Candidacy. Students will be admitted to candidacy for the Ph.D. degree upon successful completion of the written and oral quali-

fyng examinations, fulfillment of the language requirements, and the approval of a dissertation topic.

Dissertation. Candidates for the degree of Doctor of Philosophy in the History of Music or in Music Theory and Composition must submit an acceptable written dissertation on a subject approved by the Music faculty. In certain cases, and with the prior approval of the department, qualified candidates for the degree in Theory and Composition may meet a part of the dissertation requirement with an original composition.

Written dissertations should demonstrate the competence of the candidate as an independent investigator, his critical ability, and his effectiveness of expression. Upon completion of the dissertation the candidate will be expected to defend it in an oral examination.

Courses of Instruction

Except in the rarest circumstances, graduate credit is not allowed for courses numbered below Music 165.

MUSIC 102. Historical Analysis of Music to 1750 *Mr. Titcomb*

MUSIC 104b. Twentieth Century Music *Mr. Berger*

MUSIC 134c. Studies in the Analysis and Performance of Chamber Music *Mr. Koff*

MUSIC 152. Advanced Harmony *Mr. Boykan*

MUSIC 153. Principles of Counterpoint *Mr. Shapero*

MUSIC 165aR. Elementary Orchestration

The instruments of the orchestra; their construction, ranges and playing techniques, with a consideration of their use by major composers; the methods of writing effectively for present-day instruments, individually and in combination; the mechanics of reading and writing a score.

Written exercises, analysis of scores, study of recorded performances and live demonstrations. *Mr. Lucier*

*MUSIC 165b. Intermediate Orchestration

A continuation of Music 165a.

Prerequisite: Music 165a or the equivalent.

MUSIC 167. Composition in Traditional Forms

The melodic phrase; types of accompaniment; studies in harmonic rhythm; trio forms, rondo forms, sonata forms, variation forms, and free forms. Analysis and exercises. *Mr. Boykan*

*MUSIC 171b. History and Practice of Music Criticism

An examination of music criticism from the Baroque to the present day, with special attention to important nineteenth and twentieth century critics.

Prerequisite: A knowledge of music history and theory.

* Not to be given in 1963-64.

MUSIC COLLOQUIUM

Discussions of special topics led by the faculty and occasional guests. Some of the sessions will include performances of new works. Required of all graduate students. *Non-credit.* *Staff*

*MUSIC 200. Materials of Research

This course will acquaint the student with the main tools and materials of research, so as to enable him readily to pursue musicological, critical, and analytical projects in music both old and new.

Given in alternate years.

MUSIC 201. Collegium Musicum

Studies in music history through coordinated research and performance. Source and notational problems of selected historical examples will be treated in detail. Course members will be able to participate, together with members of the staff, in studio performances. Whenever possible, the course material will be integrated with that of one or more concurrent advanced courses in music history.

Mr. Brainard and Staff

MUSIC 203. Advanced Musical Analysis

Investigation of the methods of analysis of the total musical structure as distinct from conventional formulae. The premises of the tonal system will be considered to determine the relationships to which it lends itself. The concepts of musical unity of Schenker and other original thinkers in the field of analysis will be examined and evaluated.

Mr. Berger

*MUSIC 222. Seminar in Medieval and Renaissance Music

A comprehensive survey of the history of music from early Christian times through the end of the sixteenth century.

*MUSIC 223. Seminar in Baroque Music

Studies in historical developments in music of the seventeenth and eighteenth centuries. Typical full-year projects will include: the cantatas of J. S. Bach; seventeenth century keyboard music; history of cantata and oratorio in the seventeenth century; sonata, suite, concerto; Baroque opera.

MUSIC 224. Seminar in Pre-Classical and Classical Music

Study of historical problems in the music of the middle and late eighteenth century. Sample topics include: transitional sonata forms through early Haydn and Mozart; Beethoven's sketch books; stylistic interactions among the Viennese Classicists; opera from Pergolesi to Mozart.

Mr. Brainard

MUSIC 225. Seminar in Romantic Music

Selected topics in music from Beethoven, Weber, and Schubert to Strauss, Mahler, and Sibelius. Some consideration will be given to Impressionism and to the relations between music and the other arts.

Mr. Titcomb

MUSIC 228. Seminar in Twentieth Century Techniques

Exercises in composition employing musical materials and organizational methods developed since about 1900, accompanied by analysis of works of composers from Debussy to the present.

Given in alternate years.

Mr. Shapero

* Not to be given in 1963-64.

***MUSIC 231a. Studies in the History of Liturgical Chant**

The forms and notation of the chants of the Western Church (Gregorian, Beneventan, Roman, Ambrosian, Gallican, and Mozarabic) and of the Byzantine and early Slavonic Churches.

MUSIC 232. Problems in Early Notation

Trouvère notation; modal and mensural notations of the thirteenth century; French and Italian notations of the *ars nova*; white notation of the fifteenth century; introduction to Byzantine and Gregorian paleography; readings from the medieval theorists.

Given in alternate years.

Mr. K. Levy

***MUSIC 233b. Problems in Sixteenth Century Music**

Historical and style-critical studies of French, Italian, and English music from the late works of Josquin through the early recitative style.

***MUSIC 238. Studies in Contemporary Music**

Seminars devoted to the intensive study of important twentieth century compositions. Particular attention will be given to systematic approaches to the most essential problems of structure.

***MUSIC 263. Canon and Fugue**

Principles governing the construction of invertible counterpoint, various kinds of canon, strict and free fugues. Analysis of classic and modern fugues and detailed study of Johann Sebastian Bach's *Art of the Fugue*. Written exercises.

MUSIC 292. Seminar in Composition

Group meetings and individual conferences. Opportunities for the performance of student works will be provided.

Mr. Berger

MUSIC 299. Individual Research and Advanced Work

Individual research and advanced work in musical literature, musical history and in special problems of musical analysis, esthetics, theory and criticism.

Staff

MUSIC 400. Direction of Doctoral Dissertation

Required of all doctoral candidates.

Staff

Electronic Music Studio

The facilities of the studio for electronic music, established in 1961, are available to qualified student composers and provide equipment for magnet-tape manipulation appropriate to the composition of electronic music and *musique-concrète*.

Near Eastern and Judaic Studies**Objectives**

The graduate program in Near Eastern and Judaic Studies, leading to the Master of Arts and Doctor of Philosophy degrees, is designed to train scholars and teachers in the various cultures of the Near East and of the

* Not to be given in 1963-64.

classical and modern Judaic civilization, and to do further research in these areas. This work is done mainly through study of the relevant languages and literatures and interpretation of historical sources.

Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this department.

Faculty

- Professor NAHUM NORBERT GLATZER, *Chairman*: Jewish history. Literature of the Second Commonwealth. Hebrew historiography. Eschatology.
- Professor ALEXANDER ALTMANN: History of Jewish philosophy and mysticism. Medieval philosophy. Classical Bible commentaries.
- Associate Professor BENJAMIN HALPERN: Modern Near East history. Political and social history of Palestine and Israel.
- Associate Professor DAVID NEIMAN: Biblical studies. Ugaritic.
- Associate Professor DWIGHT WAYNE YOUNG: History of the Ancient Near East. Akkadian, Egyptian, and Coptic. Old Testament philology. Ugaritic.
- DR. NORMAN D. GREENWALD: Modern Near East history. Government and politics in Turkey and Egypt.
- DR. BARUCH A. LEVINE: Hebrew language. Classical Hebrew literature.
- MR. AVIGDOR LEVY: Arabic language. History of Islam.

Program of Study

Among the main fields in the area of Near Eastern and Judaic Studies in which courses are being given in the Graduate School are:

- Semitic Languages and Literatures (Akkadian, Arabic, Aramaic, Egyptian, Hebrew, Ugaritic).
- History of Ancient Near East.
- Cuneiform Studies.
- Islamic Studies.
- Biblical Studies.
- Jewish History.
- Medieval Jewish Philosophy and Mysticism.
- The Modern Near East.
- Fields of study not listed here may be approved.

Degree Requirements

Master of Arts

Residence Requirements. The student is required to complete four full courses in the department. Programs of study are kept flexible; the department will consider the needs and interests of each student and advise him in outlining a program of study—this program may be modified later by the department. Students may be required to take courses given by other departments. A student who can, on admission, give evidence of satisfactory competence in one Semitic language or in one particular field of Near Eastern and Judaic Studies, will be able to complete the program for his degree in one year. Additional resident study may be required of less advanced students.

Language Requirements. Every candidate for the Master of Arts degree must show proficiency in one Semitic language, and in French or German. In special cases, another modern foreign language may be substituted for one of the two listed here. The foreign language requirements are to be satisfied by examination not later than eight weeks before a candidate is to receive his degree.

Examination. An oral examination is given at the conclusion of the student's residence. The examination is organized around two major subjects chosen from the fields of study undertaken by the student and is designed to test the student's knowledge in those subjects as well as his ability to relate his information to the large area to which those subjects belong. A student who fails to pass the examination, or any part of it, may apply for re-examination, which will take place not earlier than one semester after the date of the first examination.

Thesis. In certain cases, the student is advised to write a thesis which must be submitted no later than May 1 of the year in which the degree is to be conferred. In such cases, the student registers in the Dissertation Colloquium (NEJS 400) which then counts as one of the required four courses.

Doctor of Philosophy

Residence Requirement. The residence normally required of a Ph.D. student who is the holder of an M.A. degree is one year (four courses); a longer residence will be required for part-time students and students holding teaching assistantships. The main emphasis, however, is placed on the students' individual research.

A student registered for studies leading to a Ph.D. degree becomes a candidate for the degree when the subject and the synopsis of his disserta-

tion have been accepted by the department and when he has passed the comprehensive examination (see below).

Language Requirements. A candidate for the Doctor of Philosophy degree in this area must show proficiency in two Semitic languages and in two modern foreign languages, as required by his special field of research. The candidate must satisfy his language requirements no later than at the completion of his required residence in the Graduate School.

Examinations. A written or an oral comprehensive examination in three areas of study (the scope being determined at a conference with the examining board) is given at the conclusion of the student's residence. A student who fails to pass the examination, or any part of it, may apply for a re-examination, which will take place not earlier than one semester after the date of the first examination.

Admission to Candidacy. A student registered for studies leading to the Ph.D. degree becomes a candidate for that degree when he has fulfilled his residence requirements, when the subject and synopsis of his dissertation have been accepted by the department, when he has passed the comprehensive examinations, and fulfilled the language requirements.

Dissertation and Defense. The student will present a written synopsis and discuss his plans for a dissertation with the chairman of the department and the dissertation supervisor. The conferences on the planning and the program of the dissertation take place in the Dissertation Colloquium (NEJS 400), a course in which the candidate is to register. Normally, the candidate will continue working on his dissertation after the completion of his residence, i.e., as a nonresident student. The dissertation must demonstrate the candidate's thorough knowledge of the field and his competence in independent research, and must constitute an original contribution to knowledge. Two copies of the dissertation, one of which must be the original typescript, are to be deposited in the office of the department chairman not later than April 1 of the year in which the candidate plans to take the degree. A defense of the dissertation will be held.

Courses of Instruction

NEJS 101. Basic Arabic

The course prepares students for classical and modern Arabic literature. Basic grammar of the language. Readings.

Open to those students who have not previously had instruction in Arabic.

NEJS 102. Intermediate Arabic

Mr. A. Levy

Selections from the Qur'an will be studied as a key to Islamic civilization. The linguistic analysis of the text will bring out the relation between Arabic and Hebrew, and lay a foundation for comparative Semitics.

Prerequisite: NEJS 101 or its equivalent. Consent of instructor required prior to enrollment.

Mr. A. Levy

***NEJS 104a. Biblical Aramaic**

Biblical Aramaic and its relationship to Sam'al Aramaic and to *Reichsaramäisch*. Analysis of Biblical and Egyptian Aramaic texts.

Prerequisite: Knowledge of Biblical Hebrew.

NEJS 105a. Syriac

Introductory course. Grammar and simple texts.

Mr. Levine

NEJS 110. Assyrian Royal Inscriptions

See Mediterranean Studies 110.

Mr. Young

NEJS 111. History of Biblical Research

Brief account of traditional Biblical interpretation. The rise of scientific study of the Bible. The methods, chief representatives, and major results of the following types of scientific Bible study: historical-literary criticism, religio-historical interpretation, form criticism.

Mr. Gottwald

NEJS 112a. Biblical Hebrew

A systematic introduction to Biblical grammar (including syntax). A selection of pertinent texts will be read.

Mr. Levine

***NEJS 113a. The Book of Samuel**

The historical setting of the book; its historical sources, compilations, redaction. The textual history of the book; including the Qumran fragments. Readings: Intensive—the Book of Samuel. Extensive—Former Prophets, Chronicles.

***NEJS 113b. The Book of Samuel**

A continuation of NEJS 113a.

***NEJS 114a. The Prophets**

Reading of major portions of the prophetic books; interpretation and analysis with special reference to literary, historical and cultural problems: attention will be devoted to elements of prophetic ideas which have influenced later thought.

***NEJS 115b. The Wisdom Literature: Job, Proverbs, Ecclesiastes**

Interpretation and analysis of the text and selection of classical commentaries.

Mr. Neiman

***NEJS 116a. The Book of Job and the Problem of Evil**

A reading of the Book of Job (in English translation) and a discussion of the role of the Book in the literature and thought of the Western world; the problem of evil in Judaism and Christianity.

NEJS 117b. The Dead Sea Scrolls

Reading of the Manual of Discipline and parts of the Zadokite Work and the Habakkuk Commentary in an attempt to understand the origin of the Dead Sea sects, their beliefs and their attitude to the world around them.

Prerequisite: Reading knowledge of the Hebrew text.

Mr. Levine

* Not to be given in 1963-64.

NEJS 118a. Amos and Hosea

A study of Amos and Hosea, examining the concepts underlying their prophecies; the nature of the prophetic experience, the sources of prophetic inspiration and the nature of the prophetic expression. *Mr. Neiman*

***NEJS 119b. Readings in Tannaitic Literature**

Introduction to the early codification of the Jewish law. Analysis of the social conditions of the Second Commonwealth as mirrored in the Mishnah. The style of the Mishnah as contrasted with Biblical Hebrew. Supplementary readings from *Mekilta* and *Sifra*.

NEJS 120b. Readings in Talmudic Literature

Baba Kamma, Perek ha-Hovel will be read.

Mr. Levine

***NEJS 121a. Selected Texts from Genesis Rabba**

A study of the earliest documents of midrashic speculation on cosmological and kindred problems. Tracing of Hellenistic, especially Gnostic sources. The origins of Jewish mysticism.

NEJS 121b. Introduction to Jewish Mysticism

An analysis of the sources and motives contributing to the rise of medieval Jewish mysticism. The stages of the development from the close of the Talmudic period to the appearance of the *Zohar* and down to Isaac Luria. *Mr. Altmann*

NEJS 122a. Classical Bible Commentaries

Selected texts, primarily from Nahmanides' commentary; introduction to the history of medieval Bible commentaries. *Mr. Altmann*

***NEJS 123b. Maimonides' Mishneh Torah**

Study of Maimonides' *Mishneh Torah* as the classical *summa* of Jewish lore and civilization. An introduction to Maimonides as the codifier of Halakah, with special reference to the social and political ideas of Biblical and post-Biblical Judaism.

Given in alternate years.

NEJS 126a. History of the Jews in Antiquity and the Middle Ages

The organization and function of the Jewish community; intellectual developments and changes in religious doctrine; mysticism; Messianic movements; the Jewish community in European economic life. *Mr. Glatzer*

***NEJS 126b. History of the Jews in Modern Times**

The emancipation of the Jews in Western Europe; the Haskalah movement. The great migrations to the West. Renaissance of Hebrew culture; anti-Semitism, Zionism. Problems of contemporary Jewish life in the United States.

***NEJS 135a. Maimonides' Guide to the Perplexed**

A study of selected chapters as focal points in the development of medieval Jewish philosophy. A knowledge of Hebrew is required.

* Not to be given in 1963-64.

***NEJS 135b. Medieval Jewish Philosophy**

A survey of Jewish philosophy in the period following Maimonides until the Renaissance.

NEJS 136b. Jewish Ethical Literature

A study of the various types (rabbinic, philosophic and kabbalistic) of the *genre* of Hebrew literature known as *Sifra Musar* and expressing the essence of Jewish spirituality. *Mr. Altmann*

***NEJS 138a. Modern Hebrew Poetry**

Reading of the poetry of Bialik, Tchernichovsky, Sheour, Greenberg, and others. Study of the development of modern Hebrew poetry and its place in modern Western poetry.

***NEJS 138b. Modern Hebrew Prose**

Reading and analysis of the works of the representatives of Hebrew post-Has-kalah and modern Israeli prose with special emphasis on Agnon, Hazaz, and Yizhar. The place of this literature in Western literature.

NEJS 139a. Selected Works in Modern Hebrew Prose

Miss Rosenberg

NEJS 139b. Selected Works in Modern Hebrew Poetry

Miss Rosenberg

***NEJS 140. Historical Survey of Yiddish Literature**

A general survey of Yiddish literature from the Middle Ages to the present. Open to all students. Lectures and readings will be in English or (for some poetical texts) in Yiddish with English translation.

Prerequisite: Permission of instructor.

NEJS 141. Yiddish Literature of the Twentieth Century

Mr. Astour

NEJS 142a. History of Islam

History of the Muslim Near East, North Africa and Spain from Muhammad to the end of the Abbasids in Bagdad in 1258. The social and intellectual conditions will be outlined. Selections of texts will be presented in translation.

Mr. A. Levy

***NEJS 142b. Islamic Religion and Institutions**

Basic trends of the religious and social development of the Muslim peoples. Qur'an and tradition. Scholastic theology. Mysticism. The legal systems. State, cities, religious brotherhoods, guilds. Islam and the modern world.

NEJS 143b. The Ottoman Empire

The history of the Ottoman Empire, its political structure and relations with European and non-European powers from the thirteenth century to 1914.

Mr. A. Levy

***NEJS 144a. Introduction to the Modern Near East**

The geography, demography and society of the modern Near East. The ethnic-religious and linguistic character of the region. The process of urbanization and industrialization; the cultural influences of the West.

* Not to be given in 1963-64.

NEJS 145a. History of the Modern Near East

The rise of nationalism in the Ottoman Empire and its Moslem successor states.

Mr. Halpern

NEJS 147b. The Near East Since World War II

Politics and political institutions of the period.

Mr. Greenwald

***NEJS 148a. Politics of Modern Near East**

Political, economic and social forces in the Modern Near East with emphasis on the historical and governmental development to 1945. Iran, Turkey, Israel and the Arab states and principalities will be examined.

NEJS 160a. American Jewish Social and Institutional History in the Nineteenth Century

The immigrants, their origins and integration. Development of religious institutions, associations and community organization; through the rise of Zionism.

Mr. Halpern

NEJS 160b. American Jewish Social and Institutional History in the Twentieth Century

The impact of eastern European immigrants upon the American Jewish community. Emergence of America as the center of world Jewry in the first and second World Wars.

Mr. Halpern

NEJS 166a. Modern Jewish Intellectual History to 1870

Jewish ideologies and movements from the Enlightenment to the rise of political anti-Semitism.

Mr. Halpern

NEJS 166b. Modern Jewish Intellectual History since 1870

Jewish ideologies and movements from the rise of political anti-Semitism to the present.

Mr. Halpern

NEJS 168a. Judaism and Contemporary Social Issues

An examination of relationships of Jewish ideologies to critical problems within organized labor and management, work and leisure, community renewal, war and peace, church and state, public policy and individual freedom.

Mr. Zion

NEJS 200. History of West Semites to the Assyrian Conquest

See Mediterranean Studies 300.

Mr. Astour

NEJS 242a. The Book of Genesis

Reading of Genesis in the light of extra-Biblical sources. Analysis of earliest Hebrew traditions and religious concepts. Patriarchal narratives against the background of Mesopotamian and Egyptian history. An examination of elements common to Biblical literature and to contemporary extra-Biblical sources.

Mr. Neiman

NEJS 242b. Chronicles, Ezra-Nehemiah, Esther, Isaiah 40-46

A study of the documents of the Bible dating from the period of Persian domination in the light of historical and literary materials from other sources.

Mr. Neiman

NEJS 251a. The Legend of Daniel-Aqhat

A study of the Ugaritic Epic Poem of Daniel as a literary composition and its comparison to Biblical poetry. Philological and linguistic analysis will be used as aids to understanding the literary style and religious concepts presented in the poem.

Mr. Neiman

* Not to be given in 1963-64.

NEJS 251b. The Legend of King Kret

Linguistic, grammatical and philological examination of the Ugaritic language, its style and syntax as represented in the poetic form found in this epic. Comparison with Hebrew and other Semitic languages will be used for elucidation. *Mr. Neiman*

NEJS 258b. Studies in Eschatological Theories

Messianic and Apocalyptic concepts in the Old Testament prophets, Apocrypha and the Dead Sea writings; in post-Biblical Judaism and early Christianity; Messianic movements in the Middle Ages. *Mr. Glatzer*

***NEJS 259b. Hebrew Historiography**

Selected Jewish historical writings in Late Antiquity and in the Middle Ages; principles and ideas underlying the historical records.

NEJS 260a. The Great Powers and the Near East

A survey of the interests and influences of the Great Powers in the Near East since 1798, with major emphasis on the period since 1945. *Mr. Greenwald*

NEJS 262b. History of Palestine and Contemporary Israel

Problems in historical background and social and political institutions. A seminar. *Mr. Halpern*

***NEJS 263b. Pro-Seminar on the History of Modern Palestine and Israel**

Topics in the diplomatic history of the region. Bibliography, problems, methods of research.

NEJS 264b. Government and Politics of Modern Turkey

An analysis of governmental institutions and political forces in contemporary Turkey. The political legacies of the Ottoman Empire and of Ataturk will be examined. Special attention will be given to the development of nationalism and trade unionism. *Mr. Greenwald*

***NEJS 265b. Politics and Society of Modern Egypt**

Egypt's political history since 1800, with stress on economic and social problems, Westernization and the development of nationalism. Major emphasis on the period since 1918.

NEJS 271a. Political and Social History of the Arabs Since 1900

Emphasis on Syria, Lebanon, Iraq and Jordan. *Mr. Greenwald*

NEJS 320. Readings in Jewish History

Supervised study of relevant texts. Meetings by appointment. *Mr. Glatzer*

NEJS 322. Readings in Medieval Jewish Philosophy

Supervised study of relevant texts. Meetings by appointment. *Mr. Altman*

***NEJS 324. Readings in Advanced Hebrew Grammar and Modern Literature**

Supervised study. Meetings by appointment.

NEJS 326. Readings in Arabic Literature

Staff

NEJS 360a. Source Studies in Jewish History: Second Commonwealth

Source studies in the history and culture of Palestine from 538 B.C. to 70 A.D. Examination of Talmudic-Midrashic material as sources for the political, social and cultural history in the first five centuries. *Mr. Glatzer*

* Not to be given in 1963-64.

NEJS 370. The Medieval Doctrine of the Intellect

A seminar studying the Concept of the Intellect in Aristotle and the Commentators; its discussion in Arabic philosophy; and the influence it exerted on the shaping of Central doctrine of Jewish philosophy.

Offered every third year.

Mr. Altmann

NEJS 375a. The Zohar: Selected Texts

Mr. Altmann

***NEJS 380a. Moses Mendelssohn and Beginnings of Modern Jewry**

A seminar studying the transition of Jewry from the Ghetto into the European world. Analysis of important literary documents of the period.

NEJS 400. Dissertation Colloquium

Messrs. Altmann, Glatzer, Greenwald, Neiman and Halpern

Physics

Objectives

The graduate program in physics is designed to equip the student with a broad understanding of all major fields of physics and to train him to carry out independent original research. This objective is to be attained by formal course work and supervised research projects. As the number of students who are accepted is limited, a close contact between students and faculty is maintained, permitting close supervision and guidance of each student.

Advanced degrees will be granted upon evidence by the student of his knowledge, understanding and proficiency in classical and modern physics, and in mathematics. The satisfactory completion of advanced courses will constitute partial fulfillment of these requirements. Research upon which theses may be based, with residence at Brandeis, can be carried out in the following areas:

Theoretical Physics: Quantum theory of fields; meson theory; quantum electrodynamics; elementary particle physics; general theory of relativity; nuclear physics; quantum statistical mechanics; thermodynamics of irreversible processes; quantum theory of the solid state; the many-body problem; kinetic theory of ionized gases; plasma physics; theoretical astrophysics.

Experimental Physics: Low energy nuclear spectroscopy; high energy experimental physics, primarily work with bubble chambers on the properties of the strange particles; atomic and molecular beams; optical pumping.

Admission

As a rule, only candidates for the Ph.D. degree will be accepted. The general requirements for admission to the Graduate School apply to candidates for

* Not to be given in 1963-64.

admission to the graduate area in physics. Admission to advanced courses in physics will be granted following a conference with the student at entrance.

Faculty

Professor KENNETH WILLIAM FORD, *Chairman*: Properties and structure of nuclei. Beta decay theory. Quantum theory of scattering. Field theory.

Professor STEPHAN BERKO: Low energy physics. Properties of solid states.

Professor DAVID L. FALKOFF: Classical and quantum statistical mechanics. Irreversible processes. Quantum theory of solids.

Visiting Professor NOBUYUKI FUKUDA (*from Tokyo University*): Statistical mechanics and the many-body problems.

Professor EUGENE P. GROSS: Quantum theory of multiparticle systems. Quantum theory of solids. Kinetic theory of ionized gases.

Professor EDGAR LIPWORTH: Molecular beams. Optical pumping.

Professor SILVAN S. SCHWEBER: Quantum theory of fields. Elementary particle physics. Quantum theory of multiparticle systems.

Visiting Professor of Physics GEORGE SUDARSHAN (*from University of Rochester*): Elementary particle physics.

Visiting Professor of Physics H. FROHLICH (*from University of Liverpool*): Statistical mechanics of low temperature systems.

*Associate Professor MAX CHRETIEN: Experimental high energy physics. Elementary particles. Quantum theory of scattering.

Associate Professor STANLEY DESER: Quantum theory of fields. Elementary particles. General relativity.

Adjunct Associate Professor VERA K. FISCHER: Experimental low energy nuclear physics. Nuclear spectroscopy. Nuclear scattering.

Associate Professor JACK S. GOLDSTEIN: Mathematical physics. Astrophysics. Plasma physics.

Associate Professor MARCUS T. GRISARU: Meson theory.

Visiting Associate Professor MEINHARD E. MAYER: Field theory.

*Assistant Professor DANIEL J. KLEITMAN: Field theory and high energy physics.

Assistant Professor HUGH N. PENDLETON: Meson theory.

Assistant Professor HOWARD J. SCHNITZER: Quantum theory of fields and dispersion relations.

Assistant Professor SANFORD E. WOLF: High energy experimental physics.

Adjunct Assistant Professor RICHARD H. LEVY: Gas dynamics and astrophysics.

* On leave, 1963-64.

Degree Requirements

Program of Study. Each student will be assigned a faculty member who will advise him on his study program. Normally a beginning graduate student will take his lecture courses from the 100 series. The General Examination will be given twice a year, during the week preceding each semester and should be taken by all degree students by the end of their third term. An adequate bibliography and sample questions are available at the department office. One language examination must be taken before the General Examination. A student will be admitted to candidacy for the Ph.D. degree after passing the Advanced Examination and the second language examination.

Master of Arts

1. One year's residence as a full-time student.
2. Eighteen semester hours of advanced courses in physics.
A thesis on an approved topic may be accepted in place of a semester course.
3. Reading knowledge of either German, Russian or French.
4. Satisfactory performance in the General Examination.

Doctor of Philosophy

1. Two years' residence as a full-time student.
2. Twenty-seven semester hours of advanced courses in physics.
3. Reading knowledge of two foreign languages chosen from French, German, or Russian.
4. Outstanding performance in the General Examination.
5. Passing of an Advanced Examination in topics related to the student's thesis subject. This examination will normally be taken after preparatory studies in prospective field of research.
6. Doctoral thesis and final oral examination.

Courses of Instruction

PHYSICS 100a. Theoretical Mechanics

Mechanics of point systems. Lagrangian and Hamiltonian methods. Small vibrations. Transformation theory. Integral invariants. Kinematics and dynamics of rigid bodies. Perturbation theory. Relativistic mechanics. *Mr. Grisaru*

PHYSICS 101a and b. Electromagnetic Theory

Electrostatics, magnetostatics, boundary value problems. Maxwell's Equations. Quasi-stationary phenomena. Radiation. *Mr. Schnitzer*

PHYSICS 102a and b. Quantum Mechanics

A critical review of the experiments leading to the quantum hypothesis. Representations, pictures. Schrodinger equation. Harmonic oscillator. Hydrogen

atom. Perturbation theory. Hydrogenic spectra. Spin. Addition of angular momenta; helium spectrum. Pauli Principle. Atomic and molecular structure. Elementary scattering theory: atomic and nuclear scattering. *Mr. Falkoff*

PHYSICS 103a. Low Energy Nuclear Physics

Experimental methods. Phenomenology of nuclear properties. Two-nucleon problem. Models for nuclear structure. Radioactivity. *Mr. Wolf*

*PHYSICS 103b. High Energy Nuclear Physics

High energy accelerators and particle detectors. Relativistic kinematics. Classification schemes of elementary particles.

*PHYSICS 104a. Modern Atomic and Molecular Physics

Microwave spectroscopy, NMR, atomic beams, optical pumping, masers and lasers.

PHYSICS 104b. Solid State Physics

Thermal, electric and magnetic properties of solids. Lattice vibrations. Specific heat. Band theory of solids. Fermi surface. *Mr. Falkoff*

PHYSICS 109a and b. Advanced Laboratory

2 credits.

Staff

PHYSICS 110a. Mathematical Physics

Linear vector spaces: matrices, operators, Hilbert spaces. Orthogonal functions. Probability theory. *Mr. Mayer*

PHYSICS 110b. Mathematical Physics

Complex variables. Differential equations. Boundary value problems. Special functions. Integral equations. Numerical methods. *Mr. Mayer*

PHYSICS 200a. Special Theory of Relativity

Foundations of the special theory. Lorentz transformations. Four-dimensional formulation of physics. Relativistic mechanics. Classical theory of fields. *Mr. Deser*

PHYSICS 200b. General Theory of Relativity

Physical background—the equivalence principle. Mathematical background—tensor analysis, affine spaces, Riemann manifolds. The Einstein field equations and their physically important special solutions. Experimental verification. The gravitational field as a dynamical system; application of field theoretical methods.

Mr. Deser

*PHYSICS 201a. Thermodynamics and Kinetic Theory

Thermodynamics. Chemical reactions. Irreversible processes. Kinetic theory. Diffusion. Boltzmann equation.

PHYSICS 201b. Statistical Mechanics

Ensembles and phase space. Maxwell-Boltzmann distribution. Boltzmann's H-theorem. Bose-Einstein and Fermi-Dirac distributions. The quantum mechanical H-theorem. Statistical explanation of thermodynamics. Applications: theory of condensation, low temperature phenomena. *To be announced*

PHYSICS 202a and b. Advanced Quantum Mechanics

Formal theory of scattering. Relativistic one particle equations. Elementary quantization of radiation field. Feynman positron theory and applications.

Mr. Pendleton

* Not to be given in 1963-64.

***PHYSICS 203a. Nuclear Physics**

Low energy nuclear phenomena. Nuclear forces. Theory of nuclear reactions. Beta-decay. Liquid drop model. Shell model, collective model.

***PHYSICS 203b. Elementary Particle Physics**

Pair production. Compton effect, Bremstrahlung. Cosmic ray phenomena. High energy meson and nuclear phenomena.

***PHYSICS 204. Solid State Physics**

Adiabatic approximation. Molecular structure. Electronic structure of solids. Specific heats. Theory of electric and thermal conductivity of solids. Electron-lattice interactions. Superconductivity. Collective interactions in solids.

PHYSICS 208a. Astrophysics

Hertzprung-Russell diagram. Classification of stellar systems. Physics of stellar interiors. Radiative transfer problems. Abundances of the elements. Magneto hydrodynamics. Physics of the interstellar medium.

Mr. Goldstein

PHYSICS 208b. Gas Dynamics and Magneto Gas Dynamics

Mr. R. Levy

***PHYSICS 209. Laboratory Seminar**

Analysis of some important recent experiments (such as molecular beams, cyclotron, etc.) to understand apparatus and techniques. *I credit.*

PHYSICS 302. Quantum Theory of Fields

The theory of interacting quantized fields. Quantum electrodynamics. Mesodynamics. Field theoretical description of the weak and strong interactions. *Mr. Grisaru*

PHYSICS 321. Seminar in Special and General Relativity**PHYSICS 323. Seminar in Quantum Theory of Fields*****PHYSICS 324a. Seminar in Advanced Statistical Mechanics*****PHYSICS 325b. Seminar in Astrophysics****Research Courses****PHYSICS 400. Research in Nuclear Physics**

Mr. Ford

PHYSICS 401. Research in Quantum Field Theory

Messrs. Ford, Grisaru, Schnitzer and Schweber

PHYSICS 402. Research in the Quantum Theory of the Solid State

Messrs. Falkoff and Gross

PHYSICS 405. Research in Meson Physics

Messrs. Grisaru, Pendleton, Schnitzer and Schweber

PHYSICS 406. Research in Astrophysics

Mr. Goldstein

PHYSICS 407. Research in the Many-Body Problem

Messrs. Falkoff and Gross

PHYSICS 408. Research in Experimental Physics—Atomic Beams

Mr. Lipworth

PHYSICS 409. Research in Experimental High Energy Physics

Mrs. Fischer, Mr. Wolf

PHYSICS 410. Research in Experimental Atomic and Nuclear Physics

Mr. Berko

* Not to be given in 1963-64.

Psychology

Objectives

The graduate program in psychology leading to the degree of Doctor of Philosophy is designed for students of promise in the field of general psychology. Theoretical and experimental studies and research projects rather than formal course training will be emphasized. Courses and seminars in special areas, such as clinical psychology, are offered to all graduate students, but no specialized training or special degrees are given. Graduate programs will be arranged individually in consultation with faculty members.

All regular graduate students must pursue programs leading to the Ph.D. degree. Special students, who are not candidates for a degree, may occasionally be admitted; such admissions are for one year at a time. Candidates for the degree of Master of Arts are not admitted, although that degree may be granted when such an action seems in the best interest of the student. In these cases, the degree is based on the successful completion of a year of regular graduate work, the demonstration of a reading proficiency in one foreign language, and the completion of a Master's thesis. A paper presented before a learned society or a paper accepted for publication by a learned journal may be accepted in lieu of a Master's thesis. A qualifying examination may also be required.

Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this area of study.

An undergraduate major in psychology is not required, although it will be favored. Students with inadequate preparation may make up their deficiencies during their first year, but without residence credit. Preference will be given to students who have completed, in addition to basic courses in theoretical and experimental psychology, a broad liberal arts program with some training in the natural and social sciences. Students will be admitted on a competitive basis which will include evaluation of previous academic record and the results of the Graduate Record Examinations (Advanced, Aptitude and Profile Tests), and the Miller Analogies Test.

All regular graduate students are expected to arrive with or to attain proficiency in the following areas:

- History and Systems of Psychology
- Abnormal Psychology
- Elementary Experimental Methods
- Physiological Psychology

Such proficiency will be evaluated by the Chairman at registration or shortly thereafter.

Faculty

- *Associate Professor RICARDO B. MORANT, *Chairman*: Experimental psychology. Developmental psychology. Perceptual mechanisms.
- Professor EUGENIA HANFMANN: Clinical psychology. Personality theory.
- Professor ABRAHAM H. MASLOW: Personality theory. Aesthetics. Social interaction.
- Professor HARRY RAND: Clinical practice and training.
- *Professor WALTER TOMAN: Personality and personality theory. Clinical psychology. Child psychology. Psychoanalytic theory.
- *Associate Professor RICHARD M. JONES: Educational psychology. Social psychology. Psychotherapy.
- *Associate Professor JAMES B. KLEE: Motivation and emotion. Symbolic and cognitive processes. Human and animal learning.
- Associate Professor ULRIC NEISSER: Experimental psychology. Human and animal learning. Cognitive processes.
- Associate Professor MARIANNE L. SIMMEL: Sensory physiology. Cognitive processes. Perception.
- Assistant Professor KENNETH D. FEIGENBAUM: Child psychology. Social psychology.
- Assistant Professor NORBETT MINTZ: Aesthetics. Application of social and clinical psychology.
- Assistant Professor DAVID F. RICKS: Clinical psychology. Psychotherapy. Projective tests.
- Assistant Professor JEROME WODINSKY: Comparative psychology. Learning theory. Sensory physiology.
- Adjunct Assistant Professor DONALD B. GIDDON: Physiological psychology. Psychosomatic relations.
- DR. ANTON G. HARDY: Clinical psychology. Motivation. Personality.

Degree Requirements

Doctor of Philosophy

Four years of full-time graduate study are usually required for the Ph.D.; they must include two years of residence on the Brandeis campus. During these two years, the student will carry fifteen credit units per semester. The ordinary program includes (a) three units in Psychology 300 (Departmental Colloquium); (b) three units in Psychology 200 (Research); (c) Psy-

* On leave, 1963-64.

** On leave, second semester, 1963-64.

chology 290-297 (Readings); and (d) three units in each of two other seminars or courses at the 100 level or above. In addition, students may audit any other courses or seminars they desire or need.

Evaluation of Proficiency. A. Students are expected to achieve a thorough knowledge of fundamentals in certain areas of psychology during their first three years. Two general areas and seven special areas have been defined by the faculty as follows:

a. *General Areas:*

1. Systematics: History and Theories
2. Statistical Methods

b. *Special Areas:*

Group A: Experimental Areas

1. Sensation and Perception
2. Learning and Thinking
3. Physiological and Comparative Psychology

Group B: Dynamic Areas

4. Personality and Motivation
5. Psychopathology and Clinical Psychology

Group C: Other Areas

6. Genetic and Child Psychology
7. Social Psychology and Anthropology

B. The student's level of proficiency in the two general areas will be determined by written examinations. The examination in Systematics will be read by all members of the faculty; the one in Statistics by a faculty committee.

C. The student will select one area from each of the three groups listed above in which he will be examined by a committee of the faculty. The examinations may be oral or written, at the option of the student.

D. Some competence is required also in the areas not selected for examination. Determination of minimal competence may be made by any one member of the faculty committee responsible for the area in question. Successful completion of a relevant course or seminar will ordinarily satisfy this requirement, but a formal paper or examination may be requested.

E. Examinations may be taken singly, at various times to be designated by the faculty. Adequate bibliography and sample questions for the guidance of students will be made available.

At least two examinations must have been taken by the end of the third semester of residence.

Individual Research. Each student is expected to engage in collaborative or independent research, with the aim of developing competence in

the planning, practice, and evaluation of research. Research work should begin during the first year of residence.

Teaching. Each student, whether or not he receives remuneration as a teaching assistant, is expected to do some undergraduate teaching to develop competence in teaching.

Language Requirement. The demands of the field of the dissertation will determine the foreign languages that the student is expected to master. Reading proficiency in at least one foreign language is required for the Ph.D. degree. This language must be one in which substantial psychological literature exists.

Admission to Candidacy. A student may not be admitted to candidacy for the doctorate until he has passed all departmental qualifying examinations.

Dissertation and Defense. Before the student begins to concentrate on dissertation research, he will prepare a prospectus of the proposed study, in consultation with a faculty dissertation sponsor. A dissertation committee of three or more faculty members will be appointed, including the dissertation sponsor. The committee will advise the student in his dissertation work and from time to time will report his progress to the faculty.

The student may, if he wishes, ask the department for *formal acceptance* of his prospectus. A prospectus that is to be formally accepted must provide a detailed outline of the experimental work to be done (if any) and of its theoretical basis. Such a prospectus will be voted upon by all members of the department. Once the department has formally accepted a prospectus, it will consider itself bound to accept the resulting dissertation as well, regardless of the experimental results, provided that the proposed work has been carried out conscientiously.

When the student has presented a dissertation prospectus, whether or not he asks for formal acceptance, his dissertation committee will be responsible for evaluating his competence in the field of psychology within which the dissertation falls. This field will ordinarily include more than one of the areas defined above and may include such related areas as sociology, linguistics, one or more physical sciences, etc. The committee may, at its discretion, require a written examination in the thesis field as a whole or in any part of it.

The dissertation should provide evidence of originality, scholarship and research ability. It should be a contribution to knowledge, ordinarily an experimental research, but not necessarily so. Upon submission to the chairman of the department of a copy of the thesis, signed by all three members of the thesis committee, and a successful defense of the thesis before all members of the department, the award of the Ph.D. will be recommended to the Faculty Council of the Graduate School.

Courses of Instruction

PSYCHOLOGY 115a. Experiential Approaches to Personality

Self-analyses, dream and symbol psychology, peak and mystic experiences, archaic, mythic and pre-rational cognition. *Mr. Maslow*

PSYCHOLOGY 118a. Physiological Psychology

Those aspects of physiology most relevant to psychological investigation: the anatomy and physiology of receptor and effector organs, the neuron and synapse, sensory and motor neural pathways, the integrative activity of the central nervous system, the autonomic nervous system and the action of hormonal factors.

Mr. Giddon

PSYCHOLOGY 119b. Comparative Psychology

Comparison of the behavior of various species, including man, in an evolutionary perspective. *Mr. Wodinsky*

PSYCHOLOGY 120a. Experimental Psychology

Individual or group research carried out under supervision. Techniques of experimentation, experimental design. *4 credits.* *Mr. Morant*

*PSYCHOLOGY 130a. Psychology of Problem Solving and Learning

A study of the creative process, its background and consequences and its relation to perception and learning theory.

*PSYCHOLOGY 131b. Psychology of Symbolic Processes

Culture as studied primarily from the frame of reference of psychology. Dreams, myths, and art as created, expressed, and as used in language, the humanities, and sciences will be studied as psychological data. The place of psychology in relation to the humanities and the other sciences will be evaluated.

*PSYCHOLOGY 132b. Psychology of Emotions

A consideration of the value dimension of the individual's dynamic relation to the world about him in both its positive and disruptive aspects.

*PSYCHOLOGY 133a. Choice, Will and the Ego

A revaluation of the "active person." Choice, freedom, and responsibility will be considered as psychological problems. A study will be made of the relevance to choice and action of hedonics, knowledge, reason, and religion, and of man's relation to his perception of good and evil, sickness and health. An assessment of the individual's role in disease and conflict.

*PSYCHOLOGY 134a. Abnormal Psychology

PSYCHOLOGY 135a. Applications of Psychoanalytic Concepts

Psychoanalytic theory will be explored in its application to literature, biography and the creative process. *Mr. Rand*

PSYCHOLOGY 135aR. Applications of Psychoanalytic Concepts

See Psychology 135a.

Mr. Rand

* Not to be given in 1963-64.

PSYCHOLOGY 137b. Personality

Study of the theoretical, clinical, and experimental contributions to our understanding of human character and personality, with special emphasis on psychological health and on dynamic theory.

Mr. Maslow

PSYCHOLOGY 138a. Socio-Cultural Factors in Mental Illness

Mr. Mintz

PSYCHOLOGY 139b. The Self and Identity

Mr. Feigenbaum

PSYCHOLOGY 140a. Learning and Behavior

Mr. Wodinsky

PSYCHOLOGY 141b. Biological Bases of Motivation

Mr. Wodinsky

PSYCHOLOGY 142b. Psychosomatics

Prerequisite: Psychology 118a.

Mr. Giddon

PSYCHOLOGY 143a. Cognitive Processes

Mr. Neisser

PSYCHOLOGY 144a. The Psychology of Language

The findings of physiology, experimental psychology, and linguistics as they bear on hearing and auditory mechanisms; speech; the acquisition and structure of language; verbal thinking and communication.

Miss Simmel

PSYCHOLOGY 145a. Psychopathology in Childhood

Mr. Ricks

PSYCHOLOGY 146a. Psychopathology and Cognition

Miss Simmel

***PSYCHOLOGY 147b. Systematic Psychology**

A seminar focusing on the validity and purpose of contemporary theoretical formulations.

***PSYCHOLOGY 148b. Advanced Child Psychology**

The dynamic aspects of child behavior and development will be studied, discussed and applied in demonstrations.

PSYCHOLOGY 149b. Philosophical Problems in Psychology

Mr. Hardy

PSYCHOLOGY 161. Field Work in Clinical Psychology

Each student spends one hour a week with a chronic adult patient, chosen by the student and seen by the student throughout the academic year. All students meet with the staff twice a week for an hour's group discussion, and each student meets once every other week for half an hour of individual consultation with the instructor.

Prerequisite: Permission of the instructor. Students from other fields may be accepted.

Mr. Mintz

PSYCHOLOGY 200a, b, and C. Individual Research Projects

Messrs. Morant, Neisser, and Staff

***PSYCHOLOGY 206a. Seminar in Learning**

* Not to be given in 1963-64.

- PSYCHOLOGY 207b. Seminar in Perception *Miss Simmel*
- PSYCHOLOGY 208b. Seminar in Cognition *Mr. Neisser*
- PSYCHOLOGY 209a. Seminar in Physiological and Comparative Psychology
Mr. Wodinsky
- *PSYCHOLOGY 210b. Advanced Psychological Statistics
- *PSYCHOLOGY 211b. Personality Theory
- PSYCHOLOGY 213. Introduction to Projective Techniques
Discussion of theoretical background; demonstration and practice of selected projective techniques
Miss Hanfmann
- *PSYCHOLOGY 215b. Psychoanalytic Theory
- *PSYCHOLOGY 216a. Selected Clinical Topics
- *PSYCHOLOGY 216b. Selected Clinical Topics
- PSYCHOLOGY 217b. Seminar in Clinical Research *Mr. Ricks*
- PSYCHOLOGY 218a. Seminar in Social Psychology *Mr. Feigenbaum*
- *PSYCHOLOGY 219a. Approaches to Psychotherapy
- PSYCHOLOGY 220. Supervised Individual Field Work *Messrs. Mintz, Ricks, and Staff*
- PSYCHOLOGY 221. Clinical Psychopathology *Mr. Rand*
- PSYCHOLOGY 290-297. Readings in Psychological Literature *Staff*
- 291-2 Learning and Higher Processes
- 291-3 Physiological and Comparative Psychology
- 292-1 Personality and Motivation
- 292-2 Psychopathology and Clinical Psychology
- 293-1 Genetic and Child Psychology
- 293-2 Social Psychology and Anthropology
- 294 Advanced Readings in Methodology and Systematics
- 295 Advanced Readings in Experimental Psychology
- 296 Advanced Readings in Dynamic Psychology
- 297 Advanced Readings in Psychology and Related Fields
- PSYCHOLOGY 300. Department Colloquium and Research Seminar
Mr. Morant and Staff
- *PSYCHOLOGY 301. Seminar in Advanced Psychological Topics I
- PSYCHOLOGY 400. Doctoral Dissertation *Mr. Morant and Staff*

* Not to be given in 1963-64.

Sociology

Objectives

The Graduate program in sociology is designed on the Ph.D. level for students who intend to devote themselves to teaching and scholarly research in sociology; on the Master of Arts level for those students who intend to devote themselves to the use of sociology in other types of professional endeavors. The objective is to train such students in the major areas of sociology, with specialization in several of them.

Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to the Sociology Department.

Faculty

Professor MORRIS S. SCHWARTZ, *Chairman*: Social psychology and social psychiatry. Applied sociology.

**Professor LEWIS A. COSER: Sociological theory. Political sociology.

Professor EVERETT C. HUGHES: Social institutions. Race and cultural contacts. Communities. Professions.

*Professor KURT H. WOLFF: Sociological theory.

Visiting Professor JOHN R. SEELEY: Social psychology. Communities.

Associate Professor MAURICE R. STEIN: Communities. Sociology of literature. Social psychiatry.

Associate Professor E. V. WALTER (Graduate Student Adviser): Political sociology. Sociology of law. Comparative institutions.

Associate Professor ROBERT S. WEISS: Methodology. Sociology of occupations.

Assistant Professor ROBERT A. FELDMESSER: Social stratification. Sociology of education. The Soviet Union.

Assistant Professor PHILIP E. SLATER: Family. Small groups.

Assistant Professor BERNARD Z. SOBEL: Sociology of religion. Sociology of the Jews.

Assistant Professor IRVING K. ZOLA: Deviance. Sociology of medicine.

Visiting Lecturer DANIEL LEVINSON: Social psychology.

* On leave, 1963-64.

** On leave, first semester, 1963-64.

Degree Requirements

Master of Arts

Program of Study. The Master of Arts, a prerequisite for the Doctor of Philosophy degree, requires twenty-seven graduate credits, normally distributed as follows: Sociology 200, 203, 125b, and a graduate seminar; the remaining nine credits may be earned in elective courses within or outside the department. In very exceptional circumstances, the student may request departmental approval to substitute alternative courses for Sociology 200, 203, or 125b.

The granting of the degree will depend on completed course work as well as the quality of research and writing completed during the course of study. When the student has acquired sufficient background for the degree, he will be invited to submit two papers for evaluation by the department.

It is expected that the student will ordinarily carry three courses each semester, and that the Master of Arts degree will be earned in three semesters. In exceptional cases, the student may receive approval to accelerate his course of study and complete degree requirements in two semesters.

Residence Requirement. The minimum residence requirement for the degree of Master of Arts is one year.

Language Requirement. The candidate must demonstrate proficiency in one foreign language, ordinarily French or German. Another language may be substituted with the consent of the department.

Doctor of Philosophy

Program of Study. A candidate for the Ph.D. degree must complete a minimum of twenty-four credits beyond the M.A., of which part may be earned by writing the dissertation. During his first year of doctoral study the student will be required to take Sociology 300 and three additional seminars or reading courses.

Residence Requirement. The minimum residence requirement for the degree of Doctor of Philosophy is two years.

It is expected that the Ph.D. degree will be earned within four years following the award of the M.A.; in exceptional cases, this time may be extended.

Language Requirements. Candidates for the Doctor's degree must demonstrate proficiency in two foreign languages, ordinarily French and German. Another language may be substituted with the permission of the department.

Qualifying Examinations. At the end of his first year of doctoral study and prior to devoting himself full-time to his dissertation research, the student must pass a qualifying examination, either oral or written at his

option. This examination is designed to test competence in three broad fields of sociology, including their histories, theories, and methodologies. The choice of fields will be determined by the student in consultation with his advisory committee.

Admission to Candidacy. A student shall be eligible for admission to candidacy when he has passed the departmental qualifying examination.

Dissertation and Final Oral Examination. The candidate will be required to prepare a prospectus for his dissertation before he begins concentrated work on it. This prospectus must be approved by his advisory committee and by the department.

When the dissertation is accepted by the department, a final oral examination will be scheduled, wherein the candidate must successfully defend his dissertation before the department members and at least one member of the faculty engaged in graduate instruction outside the department.

It is expected that all dissertations will demonstrate the competence of the candidate in originality and research ability.

Courses of Instruction

*SOCIOLOGY 100b. Sociology of the Community

The contrast between the pre-industrial and the modern industrial community. The institutional structure of community life, its internal structure and external sources of control and domination. Emphasis on the psychological and social foundations of modern community life. Illustrations from European and American communities.

*SOCIOLOGY 101b. Sociology of Conflict and War

The functions of social conflict in different types of societies and different institutional settings, in large social structures and smaller groups. Racial and ethnic conflicts, marital conflicts, political conflicts, war.

*SOCIOLOGY 102a. Social Psychiatry

The interplay between the social formation of the self and institutional participation. The processes by which the individual incorporates through language and action the personal styles available to his experience and assessment; types of personal identity and mechanisms of defense in stable and changing societies, with emphasis on Western personality.

SOCIOLOGY 103a. Sociology of Religion

Sociological analysis of contemporary and historical religious institutions and experiences. Religious leadership and followership; conversion; sect, denomination, and church; religion, society and politics; leading contemporary schools of theology.

Mr. Sobel

* Not to be given in 1963-64.

SOCIOLOGY 104b. Sociology of Education

Functional bases of educational systems; their formal and informal organization; their relations to family, economy, polity, and social classes. *Mr. Feldmesser*

SOCIOLOGY 105b. Sociology of Modern Anti-Semitism

Sociological analysis of contemporary forms of anti-Semitism. Various theories, both past and present, attempting to explain the phenomenon will be examined critically.

Admission by consent of instructor.

Mr. Sobel

SOCIOLOGY 106b. Sociology of Literature

The relations between society and literary forms in selected historical periods. Emphasis on the relations between problems and methods in inquiry as presented by sociological and humanistic students of man.

Prerequisite: Permission of the instructor.

Mr. Stein

SOCIOLOGY 107b. Advanced Social Psychology

Human behavior from a combined psychodynamic and sociological point of view, with special emphasis on socialization and the relations between the individual and the collectivity.

Messrs. Schwartz and Seeley

***SOCIOLOGY 110a. Sociology of Knowledge**

History and historical interpretation of the sociology of knowledge, with particular emphasis on German and recent American literature.

***SOCIOLOGY 111b. Political Sociology Seminar**

The political community in seventeenth century England; symbolic expression; moral and intellectual foundations; social and economic forces; the interpretation of transition.

***SOCIOLOGY 112b. Social Stratification**

Bases of stratification and types of class systems. Variables which place an individual within a class, mobility between classes; influences of class subcultures on the personality; the dynamics of change in social-class systems.

SOCIOLOGY 113a. Social Structure of the Soviet Union

Analysis of political and economic organization, class structure, the family, education, and public opinion and communication in Soviet society. Structural consequences of Communist ideology, totalitarianism, and industrialism.

Mr. Feldmesser

***SOCIOLOGY 114a. Modern Bureaucracy**

Structure and function of large-scale organizations. Authority and decision-making. Status systems and gradations of prestige. Conflicts of power within and between bureaucracies. "Red tape" and the social pathology of bureaucracies. The bureaucrat as a social type.

SOCIOLOGY 115b. Sociology of the American Churches

The major sociological and theological characteristics of the American churches; church membership and church organization; the relationship of the churches to the power structure and to each other; Catholics and Jews; the "majority" churches in a pluralistic society.

Mr. Sobel

* Not to be given in 1963-64.

SOCIOLOGY 116b. Racial and Cultural Contacts

Comparative study of multi-racial (cultural, ethnic, religious) societies in various parts of the world, but with emphasis on the United States. Their structures; problems and conflicts of personal identity; relations among people of various categories; ideologies; conflict, movements and change. *Mr. Hughes*

SOCIOLOGY 117a. Sociology of Work and Occupations

A comparison of work and occupational systems in various cultures. Social organization of occupations and the place of work in the life of the individual. *Mr. Hughes*

***SOCIOLOGY 118a. Social Institutions**

Development and changes of various institutions characteristic of North American society, with some attention to other societies. Their origins, the contingencies to which they are subject, and their interrelations. Field work.

***SOCIOLOGY 119a. Collective Behavior**

Collective processes such as crowd formation, mass behavior, the development of public opinion, and social movements will be discussed.

***SOCIOLOGY 120a. Seminar on Multi-racial Societies: Africa Seen Through Novels and Autobiographies**

Sub-Sahara Africa as seen through novels and autobiographies written by Natives (negroes), Coloured (mixed), and Europeans (whites of various European backgrounds). The functions of this literature and the social role of the literary person in such societies.

SOCIOLOGY 122a. Sociology of Power

Sociological analysis of power relations and systems, exploring the literature on the theory and practice of power, with special attention to statements by the major social theorists. *Mr. Walter*

SOCIOLOGY 122b. Comparative Political Sociology

Analysis of several typical political systems, examining their relations to social structures, using cross-cultural and historical materials, investigating the foundations of political community and the organization of controls. *Mr. Walter*

***SOCIOLOGY 123b. Ideology and Social Movements**

Effect of political events and social processes on political thought and action in the twentieth century. Social functions of political ideologies. Structure and orientation of organizations intending to cause social change.

SOCIOLOGY 125b. Statistical Methods in Sociological Methods

The uses of statistics in the organization, interpretation, and presentation of research data, with emphasis on the ideas underlying the development and use of statistical techniques. *Mr. Weiss*

SOCIOLOGY 126a. Sociology of Deviance

Deviance as a social process, its nature and conception, its functional as well as dysfunctional aspects. Survey of theory and research. Concentration on selected instances of individual and social pathology. *Mr. Zola*

* Not to be given in 1963-64.

SOCIOLOGY 127b. Social Science in Medicine

Current research and problems will be discussed, including such topics as: conceptions of health and illness, role of patients, treatment institutions and practices, and the place of social science in medicine. *Mr. Zola*

SOCIOLOGY 200. Classical Sociological Theory

Study of major sociologists, such as Comte, Spencer, Marx, Durkheim, Pareto, Weber, Simmel, Ward, Ross, Sumner, Park, Mannheim, in their historical setting, with special attention to their substantive concerns and methodologies.

1st sem., Mr. Stein

2nd sem., Mr. Coser

***SOCIOLOGY 202a. Advanced History of Sociological Theory**

Sociological theory from the late 18th century to the present.

SOCIOLOGY 203. Field Methods in Sociological Research

Field study with opportunity for individual and group research. Students will collect their own data and analyze them. *Messrs. Hughes, Stein and Weiss*

***SOCIOLOGY 205b. Contemporary Sociological Theory**

Systematic analysis of types of contemporary sociological theory.

***SOCIOLOGY 220a. Seminar on Social Institutions**

Methods of studying characteristic social institutions.

***SOCIOLOGY 222a. Survey Methods**

Methods for gathering, analyzing and interpreting survey data: theory and recent studies. Student reports on analysis of national sample survey data. Punched cards and code books will be supplied; machine time arranged.

SOCIOLOGY 225a. Applied Sociology Seminar

The application of social science principles to the solution of practical problems in such fields as community organization, technological change, urban and rural development, industrial relations, mental and public health.

Admission by consent of instructors. *Messrs. Schwartz, Seeley and Stein*

SOCIOLOGY 226b. Seminar in Social Psychology

Major problems and issues in the field of social psychology; recent research; contemporary theoretical developments. *Mr. Levinson*

***SOCIOLOGY 227b. Seminar on Occupations**

Problems in the social organization of work, with emphasis on research on the professions in modern society.

SOCIOLOGY 230-235. Readings in Sociological Literature

Mr. Schwartz and Staff

230a and b. Theory and History

231a and b. Methodology

232a and b. Institutions (Political Sociology, Communities, Bureaucracy, Education, Occupations, Religion)

233a and b. Social Psychology and Psychiatry

* Not to be given in 1963-64.

234a and b. Sociology of Intellectual Life (Sociology of Literature, Sociology of Knowledge)

235a and b. Social Processes (Causation, Change, Conflict, Control, Stratification; Racial and Cultural Relations)

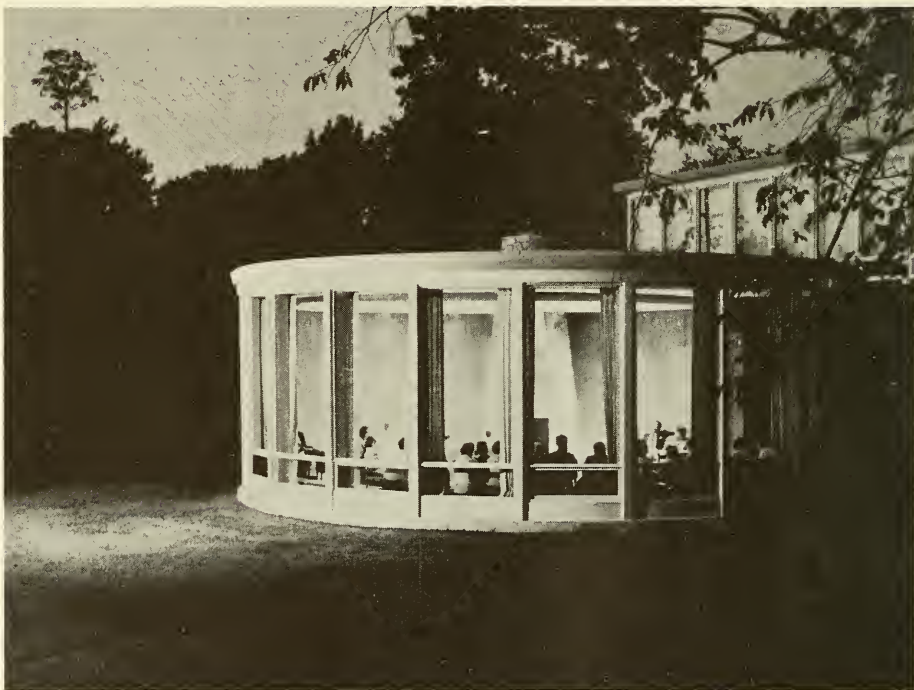
SOCIOLOGY 300. Colloquium

The purpose of the colloquium is to give staff members, sociologists from other institutions, and post-M.A. students the opportunity to present current research, tentative hypotheses, and more general ideas and positions concerning the study of society.

Messrs. Stein and Sobel

SOCIOLOGY 400. Dissertation Research

Mr. Schwartz and Staff



Fellowships

Maxwell and Fannie Abbell Fellowship (1954) Established by Mrs. Fannie Abbell of Chicago, Illinois, to underwrite the tuition of a graduate student as a memorial to her beloved husband.

Edward E. Allen Memorial Fellowship Endowment Fund (1959) Established by the family of the late Edward E. Allen of Boston, Massachusetts, and the Massachusetts Association for Retarded Children with a foundation grant of

\$10,000. The income to be used to subsidize fellowship assistance for graduate students in the School for Advanced Studies in Social Welfare, who are concentrating in the field of mental health.

Alpha Epsilon Phi Sorority Foundation Fellowship (1959) Established in honorary tribute to the Founders of this Sorority, for fellowship subsidy in the School for Advanced Studies in Social Welfare.

Jeannette and Louis Altschul Fellowship Fund (1946) Established by the late Jeannette and Louis Altschul of New York City to help subsidize the education of gifted students to complete their graduate program.

Charles C. Bassine Fellowship (1961) Established in honor of Mr. Charles C. Bassine of New York City by the Trustees of the Long Island Jewish Hospital on the occasion of his induction as a Fellow of the University, to be used to provide fellowship assistance for outstanding graduate students.

Beatrice Foods Company Fellowship (1962) Established through the generosity of the Beatrice Foods Company of Chicago, Illinois, to provide fellowship aid for gifted graduate students.

Beech-Nut Life Savers, Inc. Fellowship (1962) Established to support fellowship assistance for deserving graduate students through a grant from Beech-Nut Life Savers, Inc. of New York City.

Allan I. Bluestein Fellowship (1960) Established by Allan I. Bluestein through the Jacob Bluestein Foundation, Inc. of New York, to assist deserving students in the field of the humanities, particularly in literature, history and language.

Jacob and Rachel Bluestein Memorial Fellowship (1960) Established by Allan I. Bluestein through the Jacob Bluestein Foundation, Inc. of New York, in memory of his parents, to assist gifted students in the field of the humanities.

David Brenner Fellowship Fund (1961) An annual fellowship for a deserving graduate student in the social sciences, preferably from abroad and from a newly developing area or country.

Otto and Mynette Bresky Fellowship Endowment (1962) Established by Mr. and Mrs. Otto Bresky of Newton, Massachusetts, the income of which will help to subsidize the graduate education of a gifted and worthy student.

Morris Burg Teaching Fellowship (1957) Established by Mrs. Mildred H. Burg of Brookline, Massachusetts, in memorial tribute to her husband, to support a teaching fellowship in the area of human relations.

Campbell Soup Fellowship (1961) Four tuition fellowships established by Campbell Soup Co. as part of its Aid to Education Program and assigned to gifted students in the Florence Heller School for Advanced Studies in Social Welfare.

Eddie Cantor Fellowships (1958) Two fellowships established by Mr. Eddie Fisher of New York City and Hollywood, California, in honor of his friend and patron, Eddie Cantor, one for full maintenance and the other an annual tuition fellowship for four years, open to students primarily interested in classical music.

Dora K. Cohn Fellowship in Social Welfare (1959) Set up as a memorial by Mr. Ruby P. Cohn of St. Louis, Missouri, to subsidize graduate study in the School for Advanced Studies in Social Welfare.

Jack Cohn Memorial Science Fellowships (1962) Established by the Artists Foundation, Inc., of New York City, (Nathan J. Cohn, President) in memory of the late Jack Cohn, to provide for the next five years for the annual award of three fellowships of \$4,500 each on the basis of merit and need to students enrolled in the Graduate School in the area of science.

Combined Jewish Appeal of Greater Boston-Associated Jewish Philanthropies Fellowship (1959) A \$5,000 fellowship to be awarded to a student pursuing graduate work in social welfare.

Leon J. Coslov Fellowship (1957) Established by Mr. Leon J. Coslov of Glassport, Pennsylvania, to support a teaching fellowship.

Dan Danciger Graduate Fellowship Trust Fund (1958) Established through a \$250,000 bequest from the estate of the late Dan Danciger of Fort Worth, Texas, to provide fellowship assistance for graduate students of outstanding academic potential to enable them to pursue academic careers regardless of financial limitations.

Durkee Graduate Fellowship in Biochemistry (1962) A graduate fellowship established by the Durkee Famous Foods of Bethlehem, Pennsylvania (The Glidden Company), for support of a deserving graduate student in Biochemistry. This fellowship will provide a grant to the student, payment of tuition and an allowance for each dependent.

Eagle Food Centers Foundation Fellowship (1962) Established through the generosity of the Eagle Food Centers Foundation of Rock Island, Illinois, to subsidize gifted graduate students.

Ida and Mark A. Edison Teaching Fellowship (1955) Established as a memorial to Ida and Mark A. Edison by the Shapiro brothers of Auburn, Maine, to support a teaching fellowship.

Max and Frances Elkon Fellowship Endowment (1962) Established by Mr. and Mrs. Max Elkon of New York City. The income to be used to provide fellowship assistance for gifted graduate students.

Esso Education Foundation Teaching Fellowship (1956) A grant from the Esso Education Foundation of Standard Oil Company (New Jersey), assigned as a teaching fellowship, to assist in the undergraduate educational program.

Federation of Jewish Philanthropies of New York Fellowship (1962) Established by the Federation of Jewish Philanthropies of New York, for the support of a deserving student from the New York metropolitan area, at the Florence Heller School for Advanced Studies in Social Welfare.

M. B. and Fannie Finkelstein Foundation Research Fellowship Grant (1961) Established by the trustees of the M. B. and Fannie Finkelstein Foundation of Houston, Texas, to help subsidize an outstanding student who wishes to go into graduate research work.

Harry K. and Emma R. Fox Charitable Foundation Fellowship (1962) Established by the Harry K. and Emma R. Fox Charitable Foundation of Cleveland, Ohio, to support a partial fellowship for a deserving graduate student who, without this assistance, would be unable to complete his advanced studies.

General Foods Fund Fellowship Grant (1961) Established by the General Foods Fund Inc. of New York City, for fellowship assistance to outstanding graduate students who are concentrating in the area of the life sciences.

Leo Gerstenzang Science Fellowship Endowment Fund (1962) Established by Mrs. Leo Gerstenzang of New York City and Palm Beach, Florida, in memory of her late husband. The income will be used for fellowships to subsidize graduate education and research for deserving graduate students in the field of science.

Gillette Graduate Teaching Fellowship (1961) Established by the Gillette Company of Boston, Massachusetts, for an annual graduate teaching fellowship.

Harry and Elka Gitlow Fellowship Endowment in Humanistic Studies (1959) Established by Mr. Albert Gitlow of New York City and members of the family as a memorial tribute.

Albert A. Glassman Fellowship (1962) Established by a bequest of Albert A. Glassman, late of Cleveland, Ohio. This fund will be used for research in the field of medicine or biochemistry.

Herman Golanty Memorial Fellowship (1956) Established by Mr. George C. Golanty of Detroit, Michigan.

Beatrice I. and Jacob Goldberg Fellowship Endowment Fund (1962) Established by Mr. and Mrs. Jacob Goldberg of Brookline, Massachusetts, in honor of their fiftieth wedding anniversary. The income from this fund is to be used to support fellowships.

Alexander Goldstein Teaching Fellowship in Social Science (1950) The income from this \$25,000 fund will be used to support a teaching fellowship in the field of social science. Established as a memorial to her brother by the late Miss Lutie Goldstein of San Francisco, California.

Edward Goldstein Teaching Fellowship (1954) A grant from Mr. Edward Goldstein of Boston, Massachusetts, to support a teaching fellowship.

Abraham Goodman Fellowship Endowment Fund (1962) Established by Mr. and Mrs. Abraham Goodman of Waban, Massachusetts. Temporarily, all income will be used to subsidize graduate fellowships. Once a permanent identification has been made the capital fund will be transferred for that purpose.

Anna C. Greenstone Memorial Fellowship (1952) Established by her children, Mr. Charles R. Greenstone of San Francisco, California, Mr. Stanford M. Green of Livermore, California, and Mrs. Simon Rubin of New Bedford, Massachusetts.

Gulf Oil Corporation Fellowship (1959) A grant from the Gulf Oil Corporation's Aid to Education Program, to be assigned for fellowship assistance in the School for Advanced Studies in Social Welfare.

Edward Hano Fellowship Endowment (1958) The income from this fund is to provide supplementary fellowship assistance to gifted graduate students enrolled in the School for Advanced Studies in Social Welfare. A tribute to the late Edward Hano, of Granby, Massachusetts, by his wife and members of the family.

Louis H. Harris Teaching Fellowship (1955) Established by Mrs. Max S. Hillson and the late Mr. Hillson of New York City, in honor of Louis H. Harris, to support a teaching fellowship.

Minnie Harris Fund (1960) A trust in the amount of \$150,000 set up by Mr. Joseph Harris of New York City, in memory of his mother, to be assigned over a ten-year period to gifted students, whether graduate or undergraduate, who are planning their careers in the life sciences.

Hartog of California Graduate Fellowship Fund (1961) Established by Hartog of California, to help a graduate student interested in the field of "The History of Ideas."

Dr. Maurice B. Hexter Fellowship (1961) Established as a tribute to Dr. Maurice B. Hexter of New York City by his friends. This fellowship is to be given to a deserving student at the Florence Heller School for Advanced Studies in Social Welfare.

Hunts Point Jewish Community Center Fellowship Endowment (1962) Established by the Trustees of the Jewish Community Center of Hunts Point, New York, so that the income may be used for gifted and worthy graduate students who are concentrating in the history and literature of traditional Judaism. Preference is given to students who come from the metropolitan New York area.

Louis Isenberg Fellowship (1963) Established in the Lown Institute of Contemporary Jewish Studies by Louis Isenberg of Brookline, Massachusetts, in memory of Alice Isenberg, to provide assistance for graduate students who are concentrating in this area.

Eddie Jacobson Memorial Foundation Fellowship (1957) Two fellowships in the amount of \$2,000 each for gifted students from Israel, who are preparing themselves at Brandeis University for a more effective career of service in the State of Israel. Established by friends of the late Eddie Jacobson of Kansas City, under the chairmanship of former President Truman and Mr. George Roth.

Jewish Community Federation of Cleveland Fellowship (1962) Established by the Jewish Community Federation of Cleveland for the support of a deserving student from the Cleveland, Ohio area, at the Florence Heller School for Advanced Studies in Social Welfare.

Max Kagan Fellowship (1962) Established by Mr. Max Kagan of Bangor, Maine, in support of a deserving graduate student at the Philip W. Lown Institute of Advanced Jewish Studies.

Robert E. and Harry A. Kangesser Fellowship Trust (1951) Established by Messrs. Robert E. and Harry A. Kangesser of Cleveland, Ohio, the income to be used for teaching fellowships.

Myer and Ida Kerstein Fellowship Endowment Fund (1963) Established by Mr. Myer Kistein of Swampscott, Massachusetts, to provide aid to worthy graduate students in any field of concentration.

Richard Kramer Memorial Fellowship (1961) Established in memory of their son, Richard, by Mr. and Mrs. Louis Kramer of Philadelphia, Pennsylvania, to help subsidize a graduate student concentrating in the field of biochemistry.

Lillian Kratter Fellowship (1960) Established in her honor by her husband, Mr. Marvin Kratter of New York City, to be assigned to a female student concentrating in the Graduate School of Music.

Marvin Kratter Fellowship (1960) Established in his honor by his wife, Mrs. Lillian Kratter of New York City, to be assigned to a male student concentrating in the graduate area of biology.

William Lakritz Fellowship Endowment in Chemistry (1962) Established by the daughters of William Lakritz of New York City and their husbands, Mr. and Mrs. Jack N. Friedman of Glencoe, Illinois, and Dr. and Mrs. Henry Graham, Los Angeles, California, to be used in partial subsidy of graduate students who concentrate in the field of Chemistry.

Ida S. Latz Foundation Fellowship (1959) Established by this Foundation to make available a fellowship to a disabled veteran for study at the School for Advanced Studies in Social Welfare.

LCK Fellowship in Social Science (1957) Established by an anonymous friend of the University to support a fellowship in the area of the social sciences, with preference in the field of economics.

Mathus Lemberg Fellowship Endowment Fund (1962) Established by Bernard Lemberg of Old Bridge, New Jersey, and Leon Lemberg of Coral Gables, Florida, in memory of their beloved father so that the income may serve as tuition subvention for graduate students.

Levinson Teaching Fellowship in Biology (1951) Established by the James and Rachel Levinson Foundation of Pittsburgh, Pennsylvania.

Dr. Meno Lissauer Teaching Fellowship in Natural Science (1957) Set up

through a major gift by the late Dr. Meno Lissauer of New York City and the birthday tributes of his colleagues in the Metals and Mining Industry.

P. Lorillard and Company Fellowship (1962) Established through P. Lorillard and Company of New York City to help subsidize the education of gifted students to complete their graduate program.

Theodore Roosevelt McKeldin Fellowship (1957) Established by friends of former Governor McKeldin of Maryland as a tribute to him. To be used to subsidize gifted graduate students who plan to concentrate in the areas of political science and government.

Abraham Mendelowitz Fellowship Endowment Fund (1959) Established by the Millinery Workers Health and Welfare Fund in honor of Mr. Abraham Mendelowitz of New York City on the occasion of his 65th birthday. To subsidize outstanding scholars so that they may continue their studies and medical research in biochemistry and microbiology.

Merrill Foundation Fellowships (1961) Established by a gift from the Charles E. Merrill Trust of Boston, Massachusetts, to encourage gifted scholars in the study of all aspects of Jewish life, and develop Jewish community leadership, scholarship and teaching, especially on the university level.

National Biscuit Company Fellowship (1962) A grant from the National Biscuit Company of New York City to provide fellowship support for deserving graduate students.

David K. Niles Teaching Fellowship in American Government (1957) To be assigned in memory of a Trustee of the University, who served with distinction as administrative assistant to President Roosevelt and President Truman, for a worthy graduate student who plans for a career in American government service.

Lillian Persky Palais Endowment (1960) Established by Mr. and Mrs. Abraham S. Persky of Worcester, Massachusetts, in memory of Mr. Persky's sister, as an endowment whose income in perpetuity is to subsidize the tuition of gifted graduate students so that they may complete their science training.

Permanent Charity Fund, Incorporated Fellowships in Social Welfare (1962) Graduate fellowships contributed by the Committee of the Permanent Charity Fund, Incorporated of Boston, Massachusetts, for financial aid to deserving students at the Florence Heller School for Advanced Studies in Social Welfare.

Maurice Pollack Foundation Research Fellowship (1956) Established by the Maurice Pollack Foundation of Quebec, Canada, to enable gifted graduate students to pursue research programs in the field of Judaic studies.

Prince Macaroni Manufacturing Company and the Cleghorn Folding Box Company Fellowship (1962) Established to provide fellowship assistance to deserving graduate students by the Prince Macaroni Manufacturing Company and its subsidiary, the Cleghorn Folding Box Company, of Lowell, Massachusetts.

Norman S. Rabb Fellowship (1962) Established by business associates of the Chairman of the Board of Trustees of Brandeis University in tribute to him. This fellowship is to be granted for the support of a deserving graduate student.

Louis M. Rabinowitz Foundation, Inc. Fellowship (1962) Established by the Louis M. Rabinowitz Foundation, Inc. of New York City for the support of a foreign student in the social sciences, preferably from Africa.

Bertha C. Reiss Memorial Fellowship Endowment Fund (1954) Created by the late Dr. Henry Reiss of New York City for the establishment of the Bertha C. Reiss Memorial Fellowship or teaching fellowships. Awards to be made to students on the basis of their accomplishments in the field of research and/or teaching.

Harry and Mildred Remis Music Fellowships (1963) Established by Mr. and Mrs. Harry Remis of Swampscott, Massachusetts. The income from this fund to provide fellowship support for gifted advanced students who are enrolled in the graduate music department at the University.

Charles Revson Fellowship Trust (1962) A capital fund of \$1,000,000 established by Charles Revson of New York City, to be assigned to outstanding students who wish to pursue their graduate studies in the areas of biochemistry, chemistry, physics, biology, biophysics, mathematics or psychology. The fellowships will be granted annually in the range of \$3000-\$4000 and may be renewed for three or four years.

Benjamin Rosenberg Teaching Fellowship Endowment (1959) Established as a memorial tribute by Mr. and Mrs. Joseph Rosenberg of Fox Point, Wisconsin, to support a teaching fellowship in the field of Polymer Chemistry.

Leo L. Rosenhirsch Memorial Fellowship Fund (1961) Established by Mr. Alfred E. Rosenhirsch and Mrs. Hilda Nussenfeld of New York City to help cover tuition and other expenditures for gifted and needy graduate students.

Edwin M. Rosenthal Teaching Fellowship in the Life Sciences (1961) Established to honor the 82nd birthday of Edwin A. Rosenthal of Hollywood, Florida, by his daughter, Mrs. Hoke Levin of Detroit, Michigan, to be assigned as a teaching fellowship for a graduate student concentrating in the life sciences.

Julius Rosenwald Teaching Fellowships (1952) A series of teaching fellowships in memory of the distinguished philanthropist, Julius Rosenwald, established by his daughter, the late Mrs. Adele Rosenwald Levy of New York City, to subsidize the development and teaching of gifted graduate students.

Dr. Vera Rubin Fellowship (1960) Established by Dr. Vera Rubin of New York City for a fellowship in the field of anthropology.

Abram L. Sachar Fellowship (1961) Established by B'nai B'rith in honor of the Honorary Chairman of the National Hillel Commission, to underwrite part of the expenses for a gifted student at Brandeis University who joins the Hiatt Institute in Israel to strengthen background in Israeli Studies.

Israel Sachs Teaching Fellowship in Social Relations (1952) Established by his wife and children in his memory.

Dr. Harry Sagansky Fellowship Trust (1963) Established by Dr. Harry Sagansky of Brookline, Massachusetts, in the amount of \$25,000 annually, to be used for subsidies to graduate students so that they may be helped in the completion of their specialized training.

Samuel and Rae Salny Fellowship Endowment in Social Relations (1952) Established by Mrs. Samuel M. Salny and the late Mr. Salny of Boston, Massachusetts, the income to support a fellowship in the field of social relations.

Shirley and Maurice Saltzman Fellowship Endowment Fund (1961) Established by Mr. and Mrs. Maurice Saltzman of Cleveland, Ohio, so that the income may be assigned to gifted and advanced students who are concentrating in humanities.

David Sarnoff Fellowship (1959) Established by the RCA Education Committee to subsidize a gifted and needy student in the graduate program in physics.

Samuel D. and Goldie Saxe Fellowship in Science (1955) Established by Mrs. Goldie Saxe of Brookline, Massachusetts, and children, to support research and teacher training in the field of science.

Edward A. Schaffer Teaching Fellowship Endowment (1959) Established by

Mrs. Edward A. Schaffer of New York City, in memorial tribute to her husband, to support a teaching fellowship in the field of humanistic and social sciences.

Alice Boughton Schaffner Memorial Fellowship Endowment (1961) Established under the terms of the will of the late Alice Boughton Schaffner by her designators, Winifred Raushenbush and James Rorty. The income from this fund will be used to provide fellowship support for outstanding women students from racially underprivileged families.

Rabbi Solomon Scheinfeld Fellowship Endowment (1959) Established by the Sylvia and Aaron Scheinfeld Foundation of Chicago, Illinois, as a memorial tribute to Mr. Scheinfeld's distinguished father. The income to be used for fellowship assistance to gifted graduate students, preferably from greater Milwaukee or Wisconsin, in the School for Advanced Studies in Social Welfare.

S. H. Scheuer Fellowship (1960) Established in the School for Advanced Studies in Social Welfare to subsidize the doctoral preparation of a gifted student enrolled in the School.

Ida Hillson Schwartz and Elias Edward Schwartz Memorial Fellowship Endowment Fund (1949) Established as a memorial to Ida Hillson Schwartz of Winter Hill, Massachusetts, by her family. The fund has been augmented by a bequest from the Estate of Elias Edward Schwartz. The income to be used in perpetuity as an exchange fellowship, either to bring gifted young people from Israel to Brandeis University or to send Brandeis University students to the Hebrew University in Israel.

Kurt and Hortense Schweitzer Teaching Fellowship in American Civilization (1951) A grant from Mrs. Kurt Schweitzer and the late Mr. Schweitzer of Oklahoma City, Oklahoma, to support a teaching fellowship in the field of American civilization.

Morris Sepinuck Teaching Fellowship (1954) Created as a memorial to Morris Sepinuck by his children, Messrs. Samuel and Nathan Sepinuck, and Mrs. George Sorkin of Boston, Massachusetts.

Fannie and Simon Shamroth Fellowship Endowment (1963) Established by the children of Fannie and Simon Shamroth of Lynn, Massachusetts. The income from this fund will be used to help subsidize deserving graduate students.

Isaiah Leo Sharfman Teaching Fellowship Endowment (1956) Established by Mr. and Mrs. Samuel R. Rosenthal of Highland Park, Illinois, in tribute to Professor Sharfman of the University of Michigan, with preference given to teaching fellows in the area of economics.

Mona Bronfman Sheckman Memorial Teaching Fellowship (1952) A grant from the Mona Bronfman Sheckman Memorial Foundation of New York City, to support a teaching fellowship.

Mr. and Mrs. Abraham Smith Memorial Fellowship (1962) Established by Mr. Samuel Smith of Allentown, Pennsylvania, in memory of his parents, Mr. and Mrs. Abraham Smith, to provide fellowship assistance for worthy graduate students.

Jack and Irene Hayes Solomon Foundation Fellowship Endowment (1962) Established by the Jack and Irene Hayes Solomon Foundation of New York City, the income to be used to support fellowships for gifted graduate students.

Mr. and Mrs. Harry Stadler Teaching Fellowship in Music (1956) Established by Mr. and Mrs. Harry Stadler of Hollywood, Florida, in memory of their loving mothers, Sarah Stadler and Etta Berger, to support a teaching fellowship in the field of music.

Joseph F. Stein Foundation, Inc. Fellowship (1959) Established by the Joseph F. Stein Foundation, Inc. through Mr. Joseph F. Stein of New York City, for fellowship study in the School of Advanced Studies in Social Welfare.

Dr. and Mrs. Siegfried F. Strauss Fellowship (1961) Established by Dr. and Mrs. Siegfried F. Strauss of Chicago, Illinois, to subsidize a gifted graduate student working in the field of social welfare.

Sunshine Biscuits, Incorporated Fellowship (1962) Established through a grant from Sunshine Biscuits, Incorporated of Long Island City, New York, to provide fellowship assistance for deserving graduate students.

Gertrude W. and Edward M. Swartz Fellowship Endowment Fund (1954) Established by Mr. and Mrs. Edward M. Swartz of Brookline, Massachusetts, to support a teaching or research fellowship.

David Tannenbaum Teaching Fellowship in Legal Institutions (1958) An endowment to honor the memory of David Tannenbaum of Beverly Hills, California, established by his friends and admirers.

Tanson Enterprises Inc. Fellowship (1961) A fellowship set up by Tanson Enterprises, Inc. of New York City, to subsidize the graduate training of an outstanding student in the School for Advanced Studies in Social Welfare.

Ben Tobin Teaching Fellowship (1955) Established by Mr. Ben Tobin of Hollywood, Florida, to support a fellowship in the field of science.

Universal Match Foundation Fellowship (1957) A stipend of \$3600 to be awarded to a graduate student, or students, who are concentrating in the fields of physics, chemistry, biochemistry or microbiology, set up by the Universal Match Foundation of St. Louis, Missouri.

Leo Wasserman Graduate Fellowship (1962) Established through a gift from the Leo Wasserman Foundation as a memorial to Leo Wasserman, late of Brookline, Massachusetts; the income to be devoted to the aid of graduate students in the humanities, the social sciences, and the field of social work.

Abraham and Sarah Weisberg Endowment (1960) Established by the family and friends of Mr. and Mrs. Abraham Weisberg of Brookline, Massachusetts, to honor their golden wedding anniversary. This income to be used to support a graduate student or young faculty member to offer counsel to students who are engaged in editing and managing the student publications.

Herman Weisselberg Memorial Fellowship (1957) Established as a memorial tribute by Mr. Arnold Weisselberg of Long Island City, New York, to support a fellowship.

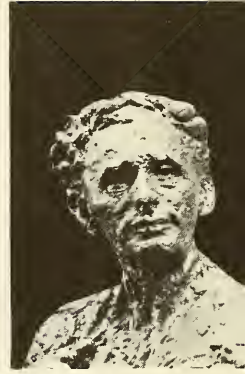
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* On leave, 1963-64.

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